SEQUENCE LISTING

<110> Horvitz, H. Robert
        Ceol, Craig
        Anderson, Eric

<120> RB PATHWAY AND CHROMATIN REMODELING
    GENES THAT ANTAGONIZE LET-60 RAS SIGNALING

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<151> 2003-01-02

<150> 60/410,160
<151> 2002-09-12

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Ser Lys Glu Ile Ile Lys Gln Met Met Arg Leu Ile Thr Val Glu Asn
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Glu Ala Leu Asp Phe Met Arg Leu Gly Leu Asp Phe Leu Asn Val Arg
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Val Pro Asp Glu Asp Lys Leu Lys Thr Asn Gln Ile Ile Thr Asp Asp
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Pro Lys Arg Arg Ile Arg Arg Leu Ser Ile Asp Ser Val Glu Glu Leu
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Glu Phe Leu Ala Ser Glu Pro Ser Thr Ser Glu Asp Ala Asp Glu Ser
        530                 535                     540
Gly Gly Asp Pro Asn Lys Leu Pro Pro Pro Thr Lys Glu Gly Lys Lys
545                 550                     555                 560
Thr Ser Pro Glu Ala Ile Leu Thr Ala Met Ser Thr Met Thr Pro Pro
                565                     570                     575
Pro Leu Ala Ile Val Glu Ala Arg Asn Leu Val Lys Tyr Ile Met His
                580                     585                     590
Thr Cys Lys Phe Val Thr Gly Gln Leu Arg Ile Ala Arg Pro Ser Gln
        595                     600                     605
Asp Met Tyr His Cys Ser Lys Glu Arg Asp Leu Phe Glu Arg Leu Leu
        610                     615                     620
Arg Tyr Gly Val Met Cys Met Asp Val Phe Val Leu Pro Thr Thr Arg
625                     630                     635                 640
Asn Gln Pro Gln Met His Ser Ser Met Arg Thr Lys Asp Glu Lys Asp
                645                     650                     655
Ala Leu Glu Ser Leu Ala Asn Val Phe Thr Thr Ile Asp His Ala Ile
                660                     665                     670
Phe Arg Glu Ile Phe Glu Lys Tyr Met Asp Phe Leu Ile Glu Arg Ile
        675                     680                     685
Tyr Asn Arg Asn Tyr Pro Leu Gln Leu Met Val Asn Thr Phe Leu Val
        690                     695                     700
Arg Asn Glu Val Pro Phe Phe Ala Ser Thr Met Leu Ser Phe Leu Met
705                     710                     715                 720
Ser Arg Met Lys Leu Leu Glu Val Ser Asn Asp Lys Thr Met Leu Tyr
                725                     730                     735
Val Lys Leu Phe Lys Ile Ile Phe Ser Ala Ile Gly Ala Asn Gly Ser
                740                     745                     750
Gly Leu His Gly Asp Lys Met Leu Thr Ser Tyr Leu Pro Glu Ile Leu
        755                     760                     765
Lys Gln Ser Thr Val Leu Ala Leu Thr Ala Arg Glu Pro Leu Asn Tyr
        770                     775                     780
Phe Leu Leu Leu Arg Ala Leu Phe Arg Ser Ile Gly Gly Gly Ala Gln
785                     790                     795                 800
Asp Ile Leu Tyr Gly Lys Phe Leu Gln Leu Leu Pro Asn Leu Leu Gln
                805                     810                     815
Phe Leu Asn Lys Leu Thr Asn Leu Gln Ser Cys Gln His Arg Ile Gln
                820                     825                     830
Met Arg Glu Leu Phe Val Glu Leu Cys Leu Thr Val Pro Val Arg Leu
        835                     840                     845
Ser Ser Leu Leu Pro Tyr Leu Pro Leu Leu Met Asp Pro Leu Val Cys
        850                     855                     860
Ala Met Asn Gly Ser Pro Asn Ile Val Thr Gln Gly Leu Arg Thr Leu
865                     870                     875                 880
Glu Leu Cys Val Asp Asn Leu Gln Pro Glu Tyr Leu Leu Glu Asn Met
                885                     890                     895
Leu Pro Val Arg Gly Ala Leu Met Gln Gly Leu Trp Arg Val Val Ser
                900                     905                     910
Lys Ala Pro Asp Thr Ser Ser Met Thr Ala Ala Phe Arg Ile Leu Gly
        915                     920                     925
Lys Phe Gly Gly Ala Asn Arg Lys Leu Leu Asn Gln Pro Gln Ile Leu
        930                     935                     940
Gln Val Ala Thr Leu Gly Asp Thr Val Gln Ser Tyr Ile Asn Met Glu
945                     950                     955                 960
Phe Ser Arg Met Gly Leu Asp Gly Asn His Ser Ile His Leu Pro Leu
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                      965                   970                    975
Ser Glu Leu Met Arg Val Val Ala Asp Gln Met Arg Tyr Pro Ala Asp
              980                   985                   990
Met Ile Leu Asn Pro Ser Pro Ala Met Ile Pro Ser Thr His Met Lys
          995                  1000                  1005
Lys Trp Cys Met Glu Leu Ser Lys Ala Val Leu Leu Ala Gly Leu Gly
     1010                  1015                  1020
Ser Ser Gly Ser Pro Ile Thr Pro Ser Ala Asn Leu Pro Lys Ile Ile
1025                  1030                  1035                  1040
Lys Lys Leu Leu Glu Asp Phe Asp Pro Asn Asn Arg Thr Thr Glu Val
                 1045                  1050                  1055
Tyr Thr Cys Pro Arg Glu Ser Asp Arg Glu Leu Phe Val Asn Ala Leu
             1060                  1065                  1070
Leu Ala Met Ala Tyr Gly Ile Trp Asn Lys Asp Gly Phe Arg His Val
         1075                  1080                  1085
Tyr Ser Lys Phe Phe Ile Lys Val Leu Arg Gln Phe Ala Leu Ile Gly
     1090                  1095                  1100
Val Leu Glu Tyr Ile Gly Gly Asn Gly Trp Met Arg His Ala Glu Glu
1105                  1110                  1115                  1120
Glu Gly Val Leu Pro Leu Cys Leu Asp Ser Ser Val Met Val Asp Ala
                 1125                  1130                  1135
Leu Ile Ile Cys Leu Ser Glu Thr Ser Ser Ser Phe Ile Ile Ala Gly
             1140                  1145                  1150
Val Met Ser Leu Arg His Ile Asn Glu Thr Leu Ser Leu Thr Leu Pro
         1155                  1160                  1165
Asp Ile Asp Gln Met Ser Lys Val Pro Met Cys Lys Tyr Leu Met Glu
     1170                  1175                  1180
Lys Val Phe Lys Leu Cys His Gly Pro Ala Trp Tyr Ala Arg Ser Gly
1185                  1190                  1195                  1200
Gly Ile Asn Ala Ile Gly Tyr Met Ile Glu Ser Phe Pro Arg Lys Phe
                 1205                  1210                  1215
Val Met Asp Phe Val Ile Asp Val Val Asp Ser Ile Met Glu Val Ile
             1220                  1225                  1230
Leu Gly Thr Val Glu Glu Ile Ser Ser Gly Ser Ala Asp Ser Ala Tyr
         1235                  1240                  1245
Asp Cys Leu Lys Lys Met Met Arg Val Tyr Phe Ile Lys Glu Glu Gly
     1250                  1255                  1260
Gln Glu Glu Glu Asn Leu Thr Leu Ala Thr Ile Phe Val Ser Ala Ile
1265                  1270                  1275                  1280
Ser Lys His Tyr Phe His Ser Asn Glu Arg Val Arg Glu Phe Ala Ile
                 1285                  1290                  1295
Gly Leu Met Asp His Cys Met Val His Ser Arg Leu Ala Pro Ser Leu
             1300                  1305                  1310
Asp Lys Phe Tyr Tyr Arg Phe Lys Glu Phe Phe Glu Pro Glu Leu Met
         1315                  1320                  1325
Arg Val Leu Thr Thr Val Pro Thr Met Ser Leu Ala Asp Ala Gly Gly
     1330                  1335                  1340
Ser Leu Asp Gly Val Gln Asn Tyr Met Phe Asn Cys Pro Asp Gly Phe
1345                  1350                  1355                  1360
Asp Phe Glu Lys Asp Met Asp Met Tyr Lys Arg Tyr Leu Ser His Leu
                 1365                  1370                  1375
Leu Asp Ile Ala Gln Thr Asp Thr Phe Thr Leu Asn Gln Arg Asn Ala
             1380                  1385                  1390
Phe Lys Lys Cys Glu Thr Cys Pro Ser His Phe Leu Pro Pro Phe Pro
         1395                  1400                  1405
Ile Thr Thr His Ile Asp Ser Met Arg Ala Ser Ala Leu Gln Cys Leu
     1410                  1415                  1420
Val Ile Ala Tyr Asp Arg Met Lys Lys Gln Tyr Ile Asp Lys Gly Ile
1425                  1430                  1435                  1440
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Glu Leu Gly Asp Glu His Lys Met Ile Glu Ile Leu Ala Leu Arg Ser
                1445   1450   1455
Ser Lys Ile Thr Val Asp Gln Val Tyr Glu Ser Asp Glu Ser Trp Arg
                1460   1465   1470
Arg Leu·Met Thr Val Leu Leu Arg Ala Val Thr Asp Arg Glu Thr Pro
            1475   1480   1485
Glu Ile Ala Glu Lys Leu His Pro Ser Leu·Leu Lys Val Ser Pro Ile
        1490   1495   1500
Ser Thr Ile Ile Ile Ala Thr Phe Gly Ala Ser Tyr Ile Arg Asn Ile
1505   1510   1515   1520
Ser Gly Ala Gly Asp Asp Ser Asp Ser Asp Arg His Ile Ser Tyr Asn
                1525   1530   1535
Asp Ile Met Lys Phe Lys Cys Leu Val Glu Leu Asn Pro Lys Ile Leu
                1540   1545   1550
Val Thr Lys Met Ala Val Asn Leu Ala Asn Gln Met Val Lys Tyr Lys
                1555   1560   1565
Met Ser Asp Lys Ile Ser Arg Ile Leu Ser Val Pro Ser Ser Phe Thr
            1570   1575   1580
Glu Glu Glu Leu Asp Asp Phe Glu Ala Glu Lys Met Lys Gly Ile Arg
1585   1590   1595   1600
Glu Leu Asp Met Ile Gly His Thr Val Lys Met Leu Ala Gly Cys Pro
                1605   1610   1615
Val Thr Thr Phe Thr Glu Gln Ile Ile Val Asp Ile Ser Arg Phe Ala
            1620   1625   1630
Ala His Phe Glu Tyr Ala Tyr Ser Gln Asp Val Leu Val Asn Trp Ile
        1635   1640   1645
Asp Asp Val Thr Val Ile Leu Asn Lys Ser Pro Lys Asp Val Trp Lys
    1650   1655   1660
Phe Phe Leu Ser Arg Glu Ser Ile Leu Asp Pro Ala Arg Arg Ser Phe
1665   1670   1675   1680
Ile Arg Arg Ile Ile Val Tyr Gln Ser Ser Gly Pro Leu Arg Gln Glu
                1685   1690   1695
Phe Met Asp Thr Pro Glu Tyr Phe Glu Lys Leu Ile Asp Leu Asp Asp
                1700   1705   1710
Glu Glu Asn Lys Asp Glu Asp Glu Arg Lys Ile Trp Asp Arg Asp Met
            1715   1720   1725
Phe Ala Phe Ser Ile Val Asp Arg Ile Ser Lys Ser Cys Pro Glu Trp
        1730   1735   1740
Leu Ile Ser Pro Asn Ser Pro Ile Pro Arg Ile Lys Lys Leu Phe Ser
1745   1750   1755   1760
Glu Thr Glu Phe Asn Glu Arg Tyr Val Val Arg Ala Leu Thr Glu Val
                1765   1770   1775
Lys Lys Phe Gln Glu Glu Ile Ile Val Lys Arg Met Thr Glu His Lys
            1780   1785   1790
Tyr Lys Val Pro Lys Leu Ile Leu Asn Thr Phe Leu Arg Tyr Leu Arg
        1795   1800   1805
Leu Asn Ile Tyr Asp Tyr Asp Leu Phe Ile Val Ile Ala Ser Cys Phe
    1810   1815   1820
Asn Gly Asn Phe Val Thr Asp Leu Ser Phe Leu Arg Glu Tyr Leu Glu
1825   1830   1835   1840
Thr Glu Val Ile Pro Lys Val Pro Leu Gln Trp Arg Arg Glu Leu Phe
                1845   1850   1855
Leu Arg Ile Met Gln Lys Phe Asp Thr Asp Pro Gln Thr Ala Gly Thr
            1860   1865   1870
Ser Met Gln His Val Lys Ala Leu Gln Tyr Leu Val Ile Pro Thr Leu
        1875   1880   1885
His Trp Ala Phe Glu Arg Tyr Asp Thr Asp Glu Ile Val Gly Thr Ala
    1890   1895   1900
Pro Ile Asp Asp Ser Asp Ser Ser Met Asp Val Asp Pro Ala Gly Ser

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1905                  1910                  1915                  1920
Ser Asp Asn Leu Val Ala Arg Leu Thr Ser Val Ile Asp Ser His Arg
                1925                  1930                  1935
Asn Tyr Leu Ser Asp Gly Met Val Ile Val Phe Tyr Gln Leu Cys Thr
          1940                  1945                  1950
Leu Phe Val Gln Asn Ala Ser Glu His Ile His Asn Asn Asn Cys Lys
       1955                  1960                  1965
Lys Gln Gly Gly Arg Leu Arg Ile Leu Met Leu Phe Ala Trp Pro Cys
    1970                  1975                  1980
Leu Thr Met Tyr Asn His Gln Asp Pro Thr Met Arg Tyr Thr Gly Phe
1985                  1990                  1995                  2000
Phe Phe Leu Ala Asn Ile Ile Glu Arg Phe Thr Ile Asn Arg Lys Ile
                2005                  2010                  2015
Val Leu Gln Val Phe His Gln Leu Met Thr Thr Tyr Gln Gln Asp Thr
          2020                  2025                  2030
Arg Asp Gln Ile Arg Lys Ala Ile Asp Ile Leu Thr Pro Ala Leu Arg
       2035                  2040                  2045
Thr Arg Met Glu Asp Gly His Leu Gln Ile Leu Ser His Val Lys Lys
    2050                  2055                  2060
Ile Leu Ile Glu Glu Cys His Asn Leu Gln His Val Gln His Val Phe
2065                  2070                  2075                  2080
Gln Met Val Val Arg Asn Tyr Arg Val Tyr Tyr His Val Arg Leu Glu
                2085                  2090                  2095
Leu Leu Thr Pro Leu Leu Asn Gly Val Gln Arg Ala Leu Val Met Pro
          2100                  2105                  2110
Asn Ser Val Leu Glu Lys Phe Ser Trp Gln Thr Arg Arg His Ala Val
       2115                  2120                  2125
Glu Ile Cys Glu Met Val Ile Lys Trp Glu Leu Phe Arg Thr Leu Lys
    2130                  2135                  2140
Thr Asp His Ile Ile Ser Asp Glu Glu Ala Leu Glu Val Asp Lys Gln
2145                  2150                  2155                  2160
Leu Asp Lys Leu Arg Thr Ala Ser Ser Thr Asp Arg Phe Asp Phe Glu
                2165                  2170                  2175
Glu Ala His Asn Lys Arg Asp Met Pro Asp Ala Gln Arg Thr Ile Ile
          2180                  2185                  2190
Lys Glu His Ala Asp Val Ile Val Asn Met Leu Val Arg Phe Cys Met
       2195                  2200                  2205
Thr Phe His Gln Asn Ser Gly Ser Ser Ser Thr Ser Gln Ser, Gly Asn
    2210                  2215                  2220
His Gly Val Glu Leu Thr Lys Lys Cys Gln Leu Leu Leu Arg Ala Ala
2225                  2230                  2235                  2240
Leu Arg Pro Ser Met Trp Gly Glu Phe Val Ser Phe Arg Leu Thr Met
                2245                  2250                  2255
Ile Glu Lys Phe Leu Ser Ile Pro Asn Asp Asn Ala Leu Arg Asn Asp
          2260                  2265                  2270
Ile Ser Ser Thr Ala Tyr Ala Asn Thr Ile Gln Asn Ala Gln His Thr
       2275                  2280                  2285
Leu Asp Met Leu Cys Asn Ile Ile Pro Val Met Pro Lys Thr Ser Leu
    2290                  2295                  2300
Met Thr Met Met Arg Gln Leu Gln Arg Pro Leu Ile Gln Cys Leu Asn
2305                  2310                  2315                  2320
Asn Gly Ala Gln Asn Phe Lys Met Thr Arg Leu Val Thr Gln Ile Val
                2325                  2330                  2335
Ser Arg Leu Leu Glu Lys Thr Asn Val Ser Val Asn Gly Leu Asp Glu
          2340                  2345                  2350
Leu Glu Gln Leu Asn Gln Tyr Ile Ser Arg Phe Leu His Glu His Phe
       2355                  2360                  2365
Gly Ser Leu Leu Asn Cys Arg Asn Leu Ser Gly Pro Val Leu Gly Val
    2370                  2375                  2380
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Leu Gly Ala Phe Ser Leu Leu Arg Thr Ile Cys Gly His Glu Pro Ala
2385   2390   2395   2400
Tyr Leu Asp His Leu Met Pro Ser Phe Val Lys Val Met Glu Arg Ala
               2405   2410   2415
Ala Lys Glu His Leu Ala Tyr Val Ala Asn Ser Gln Asp Gly Asn Met
          2420   2425   2430
Val Lys Asn Phe Phe Pro Asp Val Ala Glu Leu Leu Cys Ala Cys Met
          2435   2440   2445
Glu Leu Val Arg Pro Arg Val Asp His Ile Ser Met Glu Ile Lys Arg
          2450   2455   2460
Ser Ile Val Gly Gly Ile Ile Ala Glu Leu Ile Ile Lys Ser Asn His
2465   2470   2475 .   2480
Asp Lys Ile Ile Gln Thr Ser Val Lys Leu Leu Gly Ala Met Ile Ser
               2485   2490   2495
Thr Gln Asp Met Glu Phe Thr Ile Leu Thr Val Leu Pro Leu Leu Val
               2500   2505   2510
Arg Ile Gln Ser Ile Ile Val Thr Lys Phe Lys'Asn Cys Lys Asp Leu
               2515   2520   2525
Ile Ala Asp Tyr Leu Val Val Val Ile Thr Val Phe Glu Asn Ser Glu
               2530   2535   2540
Tyr Arg Asn Ser Glu Ala Gly Ser Arg Leu Trp Glu Gly Phe Phe Trp
2545   2550   2555   2560
Gly Leu Lys Ser Ser Asp Pro Gln Thr Arg Glu Lys Phe Ser Ile Val
               2565   2570   2575
Trp Glu Lys Thr Trp Pro His Met Ala Thr Val Asp Ile Ala His Arg
               2580   2585   2590
Met Lys Tyr Ile Met Gln Asn Gln Asp Trp Ser Lys Phe Lys His Ala
               2595   2600   2605
Phe Trp Leu Lys Phe Ala Leu Trp Gly Met Leu Arg Thr Ile Ala Lys
          2610   2615   2620
Arg Pro Thr Asp Pro Asn Asn Lys Arg Lys Lys Val Ile Leu Leu Asn
2625   2630   2635   2640
Cys Ala Thr Pro Trp Arg Thr Ile Glu Tyr Ala Ala Lys Leu Lys Asp
               2645   2650   2655
Gln Pro Met Glu Val Glu Thr Glu Met Lys Arg Glu Glu Pro Glu Pro
               2660   2665   2670
Met Glu Val Asp Glu Lys Asp Ser Gln Asp Asp Ser Lys Asp Ala Gly
          2675   2680   2685
Glu Pro Lys Glu Lys Glu Lys Leu Thr Leu Glu Leu Leu Leu Ala Gly
          2690   2695   2700
Gln Gln Glu Leu Leu Asp Glu Ala Ser Asn Tyr Asp Phe Ala Asp Ala
2705   2710   2715   2720
Leu Asp Thr Val Ser Gln Ile Thr Phe Ala Leu Asn Glu Asn Gln Val
               2725   2730   2735
Thr Ser Lys Met Trp Val Val Leu Phe Lys Ser Phe Trp Ser Ser Leu
               2740   2745   2750
Ser Gln Ser Glu Ile Glu Asp Phe Thr Ala Leu Val Val Pro Phe Met
               2755   2760   2765
Ser Ser Gly Val His Asn Asn Tyr Gln Thr Gly Val Gln Asp Ser Val
          2770   2775   2780
Leu Ala Val Trp Leu Glu Ala Val Gly Asp Ala Val His Leu Pro Ser
2785   2790   2795   2800
Arg Leu Ile Glu Phe Ile Ser Ser Lys.His Glu Cys Trp His Thr Gly
               2805   2810   2815
Ile Arg Leu Leu Glu Asn His Ile Trp Thr Ile Pro Lys Gln Leu Asn
               2820   2825   2830
Asn Thr Leu Leu Arg Glu Met Lys Val Ala Pro Gly Leu Ala Gly Asp
          2835   2840   2845
Ile Glu Thr Leu Glu Ser Leu Gly Thr Leu Tyr Asn Glu Ile Ser Glu

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      2850                2855                2860
Phe Asp Gln Phe Ala Ala Ile Trp Glu Arg Arg Ala Val Phe Pro Asp
2865                2870                2875                2880
Thr Met Arg Ala Met Ser Ala Met Gln Leu Gly Asp Met Glu Leu Ala
                2885                2890                2895
Gln Ser Tyr Leu Glu Lys Ser Met Ser Ser Thr Tyr Glu Thr Leu Ala
            2900                2905                2910
Pro Thr Ile Asn Pro Asn Asn Thr Ser Asn Ser Glu Lys His Val Ser
        2915                2920                2925
Pro Ile Ile Asp Lys Glu Tyr Asp His Trp Met Glu Met Tyr Ile Thr
        2930                2935                2940
Asn Cys Ser Glu Leu Leu Gln Trp Gln Asn Val Ala Asp Val Cys Asn
2945                2950                2955                2960
Gly Lys Asp Met Gln His Val Arg Gly Leu Ile Asn Ala Ala Ser His
                2965                2970                2975
Ile Pro Asp Trp Asn Val Val Glu Glu Cys Lys Ser Gln Ile Ala Gly
            2980                2985                2990
Cys Ile Pro Pro Ser Phe His Leu Asp Tyr Thr Leu Phe Asn Leu Met
        2995                3000                3005
Ser Thr Val Met Arg Met Asn Glu Asn Ser Ser Pro Thr His Met Lys
        3010                3015                3020
Glu Arg Cys Lys Ile Ala Ile Gln Glu Cys Thr Glu Ala His Ile Ser
3025                3030                3035                3040
Arg Trp Arg Ala Leu Pro Ser Val Val Ser Tyr Gly His Val Lys Ile
            3045                3050                3055
Leu Gln Ala Met Asn Leu Val Arg Glu Ile Glu Glu Ser Thr Asp Ile
            3060                3065                3070
Arg Ile Ala Leu Leu Glu Ala Pro Ser Asn Lys Val Asp Gln Ala Leu
        3075                3080                3085
Met Gly Asp Met Lys Ser Leu Met Lys Val Phe Arg Asn Arg Thr Pro
        3090                3095                3100
Thr Thr Ser Asp Asp Met Gly Phe Val Ser Thr Trp Tyr Asp Trp Arg
3105                3110                3115                3120
Asn Gln Ile His Gly Met Met Leu Gln Arg Phe Glu Tyr Trp Asp Lys
            3125                3130                3135
Val Gly Leu Asn Val Ala Ala Thr Gly Asn Gln Ser Ile Val Pro Ile
        3140                3145                3150
His Ser Met Ala Gln Ala Gln Leu Ala Val Ala Lys His Ala Lys Asn
        3155                3160                3165
Leu Gly Phe His Asn Leu Thr Lys Asp Leu Leu Asn Lys Leu Ala Gly
        3170                3175                3180
Leu Thr Ala Ile Pro Met Met Asp Ala Gln Asp Lys Val Cys Thr Tyr
3185                3190                3195                3200
Gly Lys Thr Leu Arg Asp Met Ala Asn Ser Ala Ala Asp Glu Arg Val
            3205                3210                3215
Lys Asn Glu Leu Leu Cys Glu Ala Leu Glu Val Leu Glu Asp Val Arg
            3220                3225                3230
Ile Asp Asp Leu Gln Lys Asp Gln Val Ala Ala Leu Leu Tyr His Arg
        3235                3240                3245
Ala Asn Ile His Ser Val Leu Asp Gln Ala Glu Asn Ala Asp Tyr Thr
        3250                3255                3260
Phe Ser Ala Ala Ser Gln Leu Val Asp Leu Gln Asn Ser Val Thr Thr
3265                3270                3275                3280
Thr Gly Ile Lys Leu Met Lys Asn Trp Gly His His Leu Tyr Lys Arg
            3285                3290                3295
Phe Phe Ser Thr Thr Val Cys Lys Glu Thr Gly Asn Asn Phe Gly Arg
        3300                3305                3310
Gln Ala Leu Ala Cys Tyr Phe Ile Ala Ala Arg Val Asp Asn Asp Ile
        3315                3320                3325
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Lys Ala Arg Lys Pro Ile Ala Lys Ile Leu Trp Leu Ser Lys His Leu
    3330              3335                3340
Asn Ala Cys Gly Ser His Glu Val Met Asn Arg Val Ile Lys Lys Gln
3345              3350                3355                3360
Leu His Ser Leu Asn Leu Phe Asn Trp Leu Tyr Trp Leu Pro Gln Leu
              3365                3370                3375
Val Thr Asp Val Arg Tyr Lys Pro Asn Ser Asn Phe Val Leu Ile Leu
              3380                3385                3390
Cys Lys Met Ala Ala Ala His Pro Leu Gln Val Phe Tyr His Ile Arg
         3395                3400                3405
Glu Ala Val Ser Val Asp Asp Ile Asp Ser Val Leu Glu Glu Asp Tyr
    3410                3415                3420
Thr Asp Glu Gln Met Ser Met Asp Val Ser Asp Glu Asp Cys Phe Ala
3425                3430                3435                3440
Asp Asp Pro Pro Phe Asp Arg Ile Leu Lys Ile Cys Leu Lys Tyr Arg
              3445                3450                3455
Pro Thr Asp Ile Arg Val Phe His Arg Val Leu Lys Glu Leu Asp Glu
              3460                3465                3470
Met Asn Glu Thr Trp Val Glu Arg His Leu Arg His Ala Ile Cys Leu
              3475                3480                3485
Lys Asp Gln Met Phe Lys Asp Phe Ser Glu Gln Met Asp Ala Thr Phe
    3490                3495                3500
Asn Glu Met Gln Tyr Ser Glu Asp Val Thr Met Met Thr Leu Arg Trp
3505                3510                3515                3520
Arg Lys Gln Leu Glu Glu Asp Leu Val Tyr Phe Gln Gln Asn Tyr Asn
              3525                3530                3535
Leu Asp Phe Leu Glu Ile Arg Asn Lys Arg Lys Met Ile Val Thr Lys
              3540                3545                3550
Gly Cys Met Gly Val Glu Lys Ser Gln Ile Met Phe Glu Lys Glu Leu
         3555                3560                3565
Ser Gln Val Phe Thr Glu Pro Ala Gly Met Gln Asp Glu Phe Asp Phe
    3570                3575                3580
Val Thr Asn Met Thr Asn Met Met Val Ser Gln Leu Asp Ile His Ala
3585                3590                3595                3600
Val Asp Ala Pro Arg Pro Gln Gly Tyr Ile Arg Ile Val Leu Asp Trp
              3605                3610                3615
Ile Arg Ala Ile Arg Arg Arg Phe Asp Arg Leu Pro Arg Arg Ile Pro
              3620                3625                3630
Leu Glu Ser Ser Ser Pro Tyr Leu Ala Arg Phe Ser His Arg Thr Gly
         3635                3640                3645
Cys Ile Glu Met Pro Tyr Asp Leu Leu Asn Val Leu Arg Ala Lys Asn
    3650                3655                3660
His Thr Leu Met Ala Ser Asn Gln Thr Gly Gln Tyr Ile Ser Met Leu
3665                3670                3675                3680
Ser Arg Phe Glu Pro Asn Phe Glu Ile Val Ile Lys Gly Gly Gln Val
              3685                3690                3695
Ile Arg Lys Ile Tyr Ile Arg Gly Gln Thr Gly Lys Ser Ala Ala Phe
              3700                3705                3710
Tyr Leu Lys Lys Ser Val Gln Asp Glu Pro Thr Asn Arg Val Pro Gln
              3715                3720                3725
Met Phe Lys His Leu Asp His Val Leu Gln Thr Asp Arg Glu Ser Ala
    3730                3735                3740
Arg Arg His Leu His Ala Pro Thr Val Leu Gln Met Arg Val Gly Gln
3745                3750                3755                3760
Lys Thr Thr Leu Tyr Glu Val Ala Ser Val Gln Pro Tyr Ala Met Pro
              3765                3770                3775
Pro Asp Cys Thr Arg Asn Tyr Pro Ala Ser Gln Ile Asp Ile Val His
              3780                3785                3790
Pro Tyr Asp Val Leu Thr Ala Thr Phe Asn Gly Ser Tyr Tyr Pro Asp
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      3795                   3800                   3805
Asp Met Val Leu His Phe Phe Glu Arg Phe Ala Gln Ser Ser Ser Ser
   3810                   3815                   3820
Ile Gly Gln Pro Leu Pro Thr Pro Thr Asn Gln Asp Gly Thr Val Ala
3825                   3830                   3835                   3840
Pro Pro Arg Leu Thr Glu Ala His His Ile Lys Asn Ile Ile Tyr Glu
                   3845                   3850                   3855
Asp Phe Ala Arg Asp Met Ile Pro Phe Arg Leu Leu Tyr Asp Tyr Leu
                   3860                   3865                   3870
Thr Ala Arg Tyr Pro Asp Pro Val Met Tyr Tyr Ala Met Lys Lys Gln
                   3875                   3880                   3885
Leu Leu His Ser Leu Ala Val Leu Ser Thr Ile Glu Tyr His Cys Asn
                   3890                   3895                   3900
Leu Thr Pro Met Gly Pro Asp Gln Met Met Met Thr Met Asn Thr Gly
3905                   3910                   3915                   3920
Val Leu Ser Asn Pro Ser Tyr Arg Phe Glu Ile Arg Gly Gly Arg Ser
                   3925                   3930                   3935
Leu His Asp Ile Gln His Phe Gly His Glu Val Pro Phe Arg Leu Thr
                   3940                   3945                   3950
Pro Asn Leu Ser Ile Leu Val Gly Val Ala Gln Asp Gly Asp Leu Leu
                   3955                   3960                   3965
Trp Ser Met Ala Ala Ala Ser Lys Cys Leu Met Lys Lys Glu Pro Glu
                   3970                   3975                   3980
Val Ile Met Arg Pro Leu Val Trp Asp Glu Phe Ala Asn Asn Thr Asp
3985                   3990                   3995                   4000
Cys Asp Lys Ser Arg Leu Gln Val Phe Ala Cys His Ala Ser Asn Ser
                   4005                   4010                   4015
Tyr Ile Asn Gly Val Ala Ser Lys Leu Arg Asn Thr Asn Ser Ala Asp
                   4020                   4025                   4030
Ala Lys Leu Arg Lys Asp Asp Cys Val Ser Leu Ile Ser Arg Ala Lys
           4035                   4040                   4045
Asp Ser Asp Asn Leu Ala Arg Met Pro Pro Thr Tyr His Ala Trp Phe
       4050                   4055                   4060
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aagaccgata cattcttgca acacatgact cgaaagtatg taggaaaaat tgaagttgga 180
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cgaggttggt ttctaggcca gccggcgcgt tttatttttt tcgagcatga tttcacaatt 780
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Gln Ala Ser Thr Ser Gly Ile Gln Leu Asn His Val Ile Pro Thr Pro
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Ile Val Met Gln Leu Arg Lys Cys Cys Asn His Pro Asn Leu Phe Glu
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Pro Arg Pro Val Val Ala Pro Phe Val Val Glu Lys Leu Gln Leu Asp
    850                 855                 860
Val Pro Ala Arg Leu Phe Glu Ile Ser Gln Gln Asp Pro Ser Ser Ser
865                 870                 875                     880
Ser Ala Ser Gln Ile Pro Glu Ile Phe Asn Leu Ser Lys Ile Gly Tyr
              885                 890                 895
Gln Ser Ser Val Arg Ser Ala Lys Pro Leu Ile Glu Glu Leu Glu Ala
          900                 905                 910
Met Ser Thr Tyr Pro Glu Pro Arg Ala Pro Glu Val Gly Gly Phe Arg
          915                 920                 925
Phe Asn Arg Thr Ala Phe Val Ala Lys Asn Pro His Thr Glu Glu Ser
    930                 935                 940
Glu Asp Glu Gly Val Met Arg Ser Arg Val Leu Pro Lys Pro Ile Asn
945                 950                 955                     960
Gly Thr Ala Gln Pro Leu Gln Asn Gly Asn Ser Ile Pro Gln Asn Ala
              965                 970                 975
Pro Asn Arg Pro Gln Thr Ser Cys Ile Arg Ser Lys Thr Val Val Asn
          980                 985                 990
Thr Val Pro Leu Thr Ile Ser Thr Asp Arg Ser Gly Phe His Phe Asn
          995                 1000                1005
Met Ala Asn Val Gly Arg Gly Val Val Arg Leu Asp Asp Ser Ala Arg
    1010                1015                1020
Met Ser Pro Pro Leu Lys Arg Gln Lys Leu Thr Gly Thr Ala Thr Asn
1025                1030                1035                1040
Trp Ser Asp Tyr Val Pro Arg His Val Val Glu Lys Met Glu Glu Ser
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                    1045                1050                1055
Arg Lys Asn Gln Leu Glu Ile Val Arg Arg Arg Phe Glu Met Ile Arg
          1060                1065                1070
Ala Pro Ile Ile Pro Leu Glu Met Val Ala Leu Val Arg Glu Glu Ile
        1075                1080                1085
Ile Ala Glu Phe Pro Arg Leu Ala Val Glu Glu Asp Glu Val Val Gln
      1090                1095                1100
Glu Arg Leu Leu Glu Tyr Cys Glu Leu Leu Val Gln Arg Phe Gly Met
1105                1110                1115                1120
Tyr Val Glu Pro Val Leu Thr Asp Ala Trp Gln Cys Arg Pro Ser Ser
    ·             1125                1130                1135
Ser Gly Leu Pro Ser Tyr Ile Arg Asn Asn Leu Ser Asn Ile Glu Leu
          1140                1145                1150
Asn Ser Arg Ser Leu Leu Leu Asn Thr Ser Thr Asn Phe Asp Thr Arg
        1155                1160                1165
Met Ser Ile Ser Arg Ala Leu Gln Phe Pro Glu Leu Arg Leu Ile Glu
      1170                1175                1180
Tyr Asp Cys Gly Lys Leu Gln Thr Leu Ala Val Leu Leu Arg Gln Leu
1185                1190                1195                1200
Tyr Leu Tyr Lys His Arg Cys Leu Ile Phe Thr Gln Met Ser Lys Met
          1205                1210                1215
Leu Asp Val Leu Gln Thr Phe Leu Ser His His Gly Tyr Gln Tyr Phe
          1220                1225                1230
Arg Leu Asp Gly Thr Thr Gly Val Glu Gln Arg Gln Ala Met Met Glu
        1235                1240                1245
Arg Phe Asn Ala Asp Pro Lys Val Phe Cys Phe Ile Leu Ser Thr Arg
      1250                1255                1260
Ser Gly Gly Val Gly Val Asn Leu Thr Gly Ala Asp Thr Val Ile Phe
1265                1270                1275                1280
Tyr Asp Ser Asp Trp Asn Pro Thr Met Asp Ala Gln Ala Gln Asp Arg
          1285                1290                1295
Cys His Arg Ile Gly Gln Thr Arg Asn Val Ser Ile Tyr Arg Leu Ile
          1300                1305                1310
Ser Glu Arg Thr Ile Glu Glu Asn Ile Leu Arg Lys Ala Thr Gln Lys
        1315                1320                1325
Arg Arg Leu Gly Glu Leu Ala Ile Asp Glu Ala Gly Phe Thr Pro Glu
      1330                1335                1340
Phe Phe Lys Gln Ser Asp Ser Ile Arg Asp Leu Phe Asp Gly Glu Asn
1345                1350                1355                1360
Val Glu Val Thr Ala Val Ala Asp Val Ala Thr Thr Met Ser Glu Lys
          1365                1370                1375
Glu Met Glu Val Ala Met Ala Lys Cys Glu Asp Glu Ala Asp Val Asn
        1380                1385                1390
Ala Ala Lys Ile Ala Val Ala Glu Ala Asn Val Asp Asn Ala Glu Phe
      1395                1400                1405
Asp Glu Lys Ser Leu Pro Pro Met Ser Asn Leu Gln Gly Asp Glu Glu
        1410                1415                1420
Ala Asp Glu Lys Tyr Met Glu Leu Ile Gln Gln Leu Lys Pro Ile Glu
1425                1430                1435                1440
Arg Tyr Ala Ile Asn Phe Leu Glu Thr Gln Tyr Lys Pro Glu Phe Glu
          1445                1450                1455
Glu Glu Cys Lys Glu Ala Glu Ala Leu Ile Asp Gln Lys Arg Glu Glu
          1460                1465                1470
Trp Asp Lys Asn Leu Asn Asp Thr Ala Val Ile Asp Leu Asp Asp Ser
        1475                1480                1485
Asp Ser Leu Leu Leu Asn Asp Pro Ser Thr Ser Ala Asp Phe Tyr Gln
      1490                1495                1500
Ser Ser Ser Leu Leu Asp Glu Ile Lys Phe Tyr Asp Glu Leu Asp Asp
1505                1510                1515                1520
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Ile Met Pro Ile Trp Leu Pro Pro Ser Pro Pro Asp Ser Asp Ala Asp
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Phe Asp Leu Arg Met Glu Asp Asp Cys Leu Asp Leu Met Tyr Glu Ile
            1540   1545   1550
Glu Gln Met Asn Glu Ala Arg Leu Pro Gln Val Cys His Glu Met Arg
        1555   1560   1565
Arg Pro Leu Ala Glu Lys Gln Gln Lys Gln Asn Thr Leu Asn Ala Phe
    1570   1575   1580
Asn Asp Ile Leu Ser Ala Lys Glu Lys Glu Ser Val Tyr Asp Ala Val
1585   1590   1595   1600
Asn Lys Cys Leu Gln Met Pro Gln Ser Glu Ala Ile Thr Ala Glu Ser
            1605   1610   1615
Ala Ala Ser Pro Ala Tyr Thr Glu His Ser Ser Phe Ser Met Asp Asp
            1620   1625   1630
Thr Ser Gln Asp Ala Lys Ile Glu Pro Ser Leu Thr Glu Asn Gln Gln
        1635   1640   1645
Pro Thr Thr Thr Ala Thr Thr Thr Thr Thr Val Pro Gln Gln Gln Gln
    1650   1655   1660
Gln Gln Gln Gln Gln Lys Ser Ser Lys Lys Lys Arg Asn Asp Asn Arg
1665   1670   1675   1680
Thr Ala Gln Asn Arg Thr Ala Glu Asn Gly Val Lys Arg Ala Thr Thr
            1685   1690   1695
Pro Pro Pro Ser Trp Arg Glu Glu Pro Asp Tyr Asp Gly Ala Glu Trp
            1700   1705   1710
Asn Ile Val Glu Asp Tyr Ala Leu Leu Gln Ala Val Gln Val Glu Phe
        1715   1720   1725
Ala Asn Ala His Leu Val Glu Lys Ser Ala Asn Glu Gly Met Val Leu
    1730   1735   1740
Asn Trp Glu Phe Val Ser Asn Ala Val Asn Lys Gln Thr Arg Phe Phe
1745   1750   1755   1760
Arg Ser Ala Arg Gln Cys Ser Ile Arg Tyr Gln Met Phe Val Arg Pro
            1765   1770   1775
Lys Glu Leu Gly Gln Leu Val Ala Ser Asp Pro Ile Ser Lys Lys Thr
            1780   1785   1790
Met Lys Val Asp Leu Ser His Thr Glu Leu Ser His Leu Arg Lys Gly
        1795   1800   1805
Arg Met Thr Thr Glu Ser Gln Tyr Ala His Asp Tyr Gly Ile Leu Thr
    1810   1815   1820
Asp Lys Lys His Val Asn Arg Phe Lys Ser Val Arg Val Ala Ala Thr
1825   1830   1835   1840
Arg Arg Pro Val Gln Phe Trp Arg Gly Pro Lys Gly Arg Gly Gly Trp
            1845   1850   1855
Leu His Asn Ser His Cys Asn Phe Phe Leu Thr Arg Asp Glu Lys Lys
            1860   1865   1870
Trp Phe Leu Gly His Gly Arg Gly Ala Asp Lys Phe Gln
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gtg gta ttg cct aaa aag cg gtgagaattt gcttcagaca gaaattcgtt   1065
Val Val Leu Pro Lys Lys Arg

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gct gta cag gac ggt ggt gcc gtt aag gag aac aaa gcc aag cca cct    2004
Ala Val Gln Asp Gly Gly Ala Val Lys Glu Asn Lys Ala Lys Pro Pro
 25               30                35                        40

gcc cct caa acg cct aca aaa cga gca aaa cga ggt cgt ccc ccg aaa    2052
Ala Pro Gln Thr Pro Thr Lys Arg Ala Lys Arg Gly Arg Pro Pro Lys
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att aag act g gtgagcgaat gactatacgg aagattgaaa attcacgtgg          2102
Ile Lys Thr


aatacttgca g at gcc aat act ttg aat acg cca agc act tct tcc aac    2151
              Asp Ala Asn Thr Leu Asn Thr Pro Ser Thr Ser Ser Asn
               60                65                70


ttg gtc gat gac aaa ctt ctc att gag tct gaa tca cag gtaaattgat    2200
Leu Val Asp Asp Lys Leu Leu Ile Glu Ser Glu Ser Gln
         75                80                85


tcttttctat tcaaaaatta atctaaacta tacattccag gac tcg att ctc aca    2255
                                             Asp Ser Ile Leu Thr
                                                               90


aac gaa gcc gac tct ttt ctg gaa aaa gaa gtg gaa gaa atc gaa gat    2303
Asn Glu Ala Asp Ser Phe Leu Glu Lys Glu Val Glu Glu Ile Glu Asp
                95                100               105


agt tca gat ata ctt ccc gat aaa att aat tct cca gaa aaa cca agt    2351
Ser Ser Asp Ile Leu Pro Asp Lys Ile Asn Ser Pro Glu Lys Pro Ser
             110               115               120


gtt ttg gtg aag cgg aga tcg agt acg cgg tta aaa gtg aag act gat    2399
Val Leu Val Lys Arg Arg Ser Ser Thr Arg Leu Lys Val Lys Thr Asp
         125               130               135


gaa gat gaa aaa gat gtt cct gtg aac ata gaa gta gcc gtt tta gaa    2447
Glu Asp Glu Lys Asp Val Pro Val Asn Ile Glu Val Ala Val Leu Glu
     140               145               150
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gaa aaa tca att caa atc gag cca aca tct ccc gct cac ccg gaa gat    2495
Glu Lys Ser Ile Gln Ile Glu Pro Thr Ser Pro Ala His Pro Glu Asp
155             160             165             170

cct cag gtgagctttt tttaaaaata tgtattaatc aaaattcctt catttccag cct 2553
Pro Gln                                                         Pro


tcg act tct tct ctt cca ctg gta gaa cca att gaa gac att gtg gag    2601
Ser Thr Ser Ser Leu Pro Leu Val Glu Pro Ile Glu Asp Ile Val Glu
    175             180             185

cca aat gag cca aca agc tct gcc gat cct cca gta tca aat att aag    2649
Pro Asn Glu Pro Thr Ser Ser Ala Asp Pro Pro Val Ser Asn Ile Lys
190             195             200             205

gat gag gat att aaa gaa gaa gag cca ctg att aaa aag cca gct tcc    2697
Asp Glu Asp Ile Lys Glu Glu Glu Pro Leu Ile Lys Lys Pro Ala Ser
            210             215             220

gat gag tca gaa tct atg gat ata gct aac tct gaa agt gga aat gat    2745
Asp Glu Ser Glu Ser Met Asp Ile Ala Asn Ser Glu Ser Gly Asn Asp
            225             230             235

tcc gat tca agt gaa gct gat cct agg acg ata cca tct ttc tct ata   2793
Ser Asp Ser Ser Glu Ala Asp Pro Arg Thr Ile Pro Ser Phe Ser Ile
        240             245             250

cct ctt ccc gac aca cca cct cca aat ttt gcg aaa aga gga gaa ata    2841
Pro Leu Pro Asp Thr Pro Pro Pro Asn Phe Ala Lys Arg Gly Glu Ile
    255             260             265

cat gta gat gta gat cag aaa aat tcc aag caa tca gga gaa tca caa    2889
His Val Asp Val Asp Gln Lys Asn Ser Lys Gln Ser Gly Glu Ser Gln
270             275             280             285

tcg cct tgg gag cg gtaagaatat ttatcctagc caggtgttat aacaaaattg     2943
Ser Pro Trp Glu Arg
            290

aatagtttca g a gca aga gaa aag tct gca tcg aac cca ttg tcc tct     2991
            Ala Arg Glu Lys Ser Ala Ser Asn Pro Leu Ser Ser
                            295             300

cca aca atg agc cga ccc agg ata cac ttc ctt cat cca gca tat caa    3039
Pro Thr Met Ser Arg Pro Arg Ile His Phe Leu His Pro Ala Tyr Gln
        305             310             315

agt ttc aca aat gat tca gtt tca cct cta cca cca ccg cca cca gag    3087
Ser Phe Thr Asn Asp Ser Val Ser Pro Leu Pro Pro Pro Pro Pro Glu
    320             325             330

ccg gct cca gct cgt gaa aaa gtg gaa aat ggt ggt cca act act ttc    3135
Pro Ala Pro Ala Arg Glu Lys Val Glu Asn Gly Gly Pro Thr Thr Phe
335             340             345             350

aaa atg act ttc aaa aaa gct gca aat att cct atc ttg aag aca tcg    3183
Lys Met Thr Phe Lys Lys Ala Ala Asn Ile Pro Ile Leu Lys Thr Ser
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gca ttt gaa caa cca tca tca cct cca cct tcc tca tca gtt tct tca   3231
Ala Phe Glu Gln Pro Ser Ser Pro Pro Pro Ser Ser Ser Val Ser Ser
                370              375              380

tca att tca tta tct gaa gtg aat tct tct aca tcg ata gcc tcc gag   3279
Ser Ile Ser Leu Ser Glu Val Asn Ser Ser Thr Ser Ile Ala Ser Glu
                385              390              395

tct tct cca gcg aaa aga agc tca aat ttc gat tta act gcc tca aat   3327
Ser Ser Pro Ala Lys Arg Ser Ser Asn Phe Asp Leu Thr Ala Ser Asn
        400              405              410

gag ctt cca cca cct cag atg gtt gaa ctt ccc aag ctc tca ttt ttc   3375
Glu Leu Pro Pro Pro Gln Met Val Glu Leu Pro Lys Leu Ser Phe Phe
415              420              425              430

aat atg cct cca gcc gtt cgc tcc gca gag gttagttaac tttttcccgg   3425
Asn Met Pro Pro Ala Val Arg Ser Ala Glu
                435              440

tttcatgaaa tttcagcggt atctgtcctc cttttggtgt gtgccctcac aacctaacct 3485
cttttatcca g gac gat tct gcg atg acg tcg gaa gaa ccg atc ctt ctc 3535
           Asp Asp Ser Ala Met Thr Ser Glu Glu Pro Ile Leu Leu
                          445              450

ctc cgt tct ccg aat tcc gcc act cct gat gat gat gca ctt ttc ctc   3583
Leu Arg Ser Pro Asn Ser Ala Thr Pro Asp Asp Asp Ala Leu Phe Leu
        455              460              465

acg acc cca cca cca ccc aag atg acc gaa tca gaa att caa gca ctg   3631
Thr Thr Pro Pro Pro Pro Lys Met Thr Glu Ser Glu Ile Gln Ala Leu
470              475              480              485

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                                                              Lys

gta gcg acg gaa aaa gtg aat caa gta att gct cga cgt gaa gat tct   4277
Val Ala Thr Glu Lys Val Asn Gln Val Ile Ala Arg Arg Glu Asp Ser
                490              495              500

gaa aaa gat gta cgt cac aga gaa gat cga gat gat tat gat aga cga   4325
Glu Lys Asp Val Arg His Arg Glu Asp Arg Asp Asp Tyr Asp Arg Arg
                505              510              515

cgt gac gac cgt gac aga aga tcc aga aag act gat tcg gaa cga aat   4373
Arg Asp Asp Arg Asp Arg Arg Ser Arg Lys Thr Asp Ser Glu Arg Asn
        520              525              530
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gat caa aga gga cga caa cgt gaa gat gat gaa cga aga gct cga gaa    4421
Asp Gln Arg Gly Arg Gln Arg Glu Asp Asp Glu Arg Arg Ala Arg Glu
535             540             545             550

cga gaa aga gaa gtt acg aaa cga cat gat cgg gaa agg gaa gag atg    4469
Arg Glu Arg Glu Val Thr Lys Arg His Asp Arg Glu Arg Glu Glu Met
            555             560             565

cga tta cag aaa caa aaa gat gag gaa aga aga aag aaa gat gaa gag    4517
Arg Leu Gln Lys Gln Lys Asp Glu Glu Arg Arg Lys Lys Asp Glu Glu
        570             575             580

gaa agg ata caa aaa gag aat gat gag aaa aaa caa aaa gag gat gaa    4565
Glu Arg Ile Gln Lys Glu Asn Asp Glu Lys Lys Gln Lys Glu Asp Glu
        585             590             595

gcc aaa atg gag gag gag aaa aag aag att aaa gag gag gaa atg aag    4613
Ala Lys Met Glu Glu Glu Lys Lys Lys Ile Lys Glu Glu Glu Met Lys
    600             605             610

att cct gaa ttt gag ttg att agc gaa tca aaa tat ttg acg agg aat    4661
Ile Pro Glu Phe Glu Leu Ile Ser Glu Ser Lys Tyr Leu Thr Arg Asn
615             620             625             630

gcg aat aaa aag aag act gaa tcc tta ac gtaagttatt atttataaat       4710
Ala Asn Lys Lys Lys Thr Glu Ser Leu Thr
                635             640

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cga act ggt gga aac tgt tcg gac aat act tgt gtg aat cgt gca atg    5353
Arg Thr Gly Gly Asn Cys Ser Asp Asn Thr Cys Val Asn Arg Ala Met
645             650             655             660

ctc acc gag tgc cca tca tca tgt cag gtc aaa tgc aag aat caa cga    5401
Leu Thr Glu Cys Pro Ser Ser Cys Gln Val Lys Cys Lys Asn Gln Arg
            665             670             675

ttt gca aag aaa aag tac gcg gct gtt gaa gca ttc cac act gga acc    5449
Phe Ala Lys Lys Lys Tyr Ala Ala Val Glu Ala Phe His Thr Gly Thr
        680             685             690

gcc aaa gga tgt gga ctt cga gca gtg aaa gac ata aaa aaa gga aga    5497
Ala Lys Gly Cys Gly Leu Arg Ala Val Lys Asp Ile Lys Lys Gly Arg
        695             700             705

ttc atc att gaa tat ata gga gaa gtt gtg gaa aga gat gat tat gag    5545
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Phe Ile Ile Glu Tyr Ile Gly Glu Val Val Glu Arg Asp Asp Tyr Glu
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aag aga aaa acg aaa tat gca gct gat aaa aag cac aaa cat cat tat   5593
Lys Arg Lys Thr Lys Tyr Ala Ala Asp Lys Lys His Lys His His Tyr
725              730              735              740

ctc tgt gat act gga gtc tac acg atc gac gca aca gtc tac gga aat   5641
Leu Cys Asp Thr Gly Val Tyr Thr Ile Asp Ala Thr Val Tyr Gly Asn
                745              750              755

cca tct cga ttt gtg aat cat agt tgt gat cct aat gct ata tgt gag   5689
Pro Ser Arg Phe Val Asn His Ser Cys Asp Pro Asn Ala Ile Cys Glu
            760              765              770

aaa tgg tct gta cca aga act cct gga gac gtt aat cga gtt ggt ttc   5737
Lys Trp Ser Val Pro Arg Thr Pro Gly Asp Val Asn Arg Val Gly Phe
        775              780              785

ttc tcg aaa cga ttc att aaa gcc ggc gaa gaa atc aca ttt gat tat   5785
Phe Ser Lys Arg Phe Ile Lys Ala Gly Glu Glu Ile Thr Phe Asp Tyr
    790              795              800

caa ttt gtc aac tac gga cgt gac gct caa caa tgt ttc tgt gga agt   5833
Gln Phe Val Asn Tyr Gly Arg Asp Ala Gln Gln Cys Phe Cys Gly Ser
805              810              815              820

gct tca tgt agt gga tgg att ggg cag aaa ccg gaa gaa ttt tca tct   5881
Ala Ser Cys Ser Gly Trp Ile Gly Gln Lys Pro Glu Glu Phe Ser Ser
                825              830              835

gat gag gat gat gat att gtg act aca agg cat att aat atg gat gaa   5929
Asp Glu Asp Asp Asp Ile Val Thr Thr Arg His Ile Asn Met Asp Glu
            840              845              850

gaa gaa gaa gaa aag ttg gaa ggt ctt gat cat ctt gga aat cat gaa   5977
Glu Glu Glu Glu Lys Leu Glu Gly Leu Asp His Leu Gly Asn His Glu
        855              860              865

cgg aat gaa gtg atc aag gat atg ttg gat gat ttg gtc att cgg aat   6025
Arg Asn Glu Val Ile Lys Asp Met Leu Asp Asp Leu Val Ile Arg Asn
    870              875              880

aag aag cat gct agg aag gtt atc aca att gcg gtaagcattt atttgtagag 6078
Lys Lys His Ala Arg Lys Val Ile Thr Ile Ala
885              890              895

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gttttaactt gaaattgcga atttcatttg tacagatttt tgaaacgccg aattttcgcg 6258
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tcagaacttc ggaatcagtt gcaaatttgg agtcatttga aaatatttct cagatttcgg 6618
tactccacct ttattataat ttttaaaatt ttttaaatga tttttttttcc atgttcaaca 6678
aaaaaataaa ttttcag tct gca atg acc gat tac tct caa cgt gtg gat    6728
                Ser Ala Met Thr Asp Tyr Ser Gln Arg Val Asp

                                -54-
```

```
gtc att caa gaa atc ttc tcc tca gac acc tcc gta acc gtt caa aaa   6776
Val Ile Gln Glu Ile Phe Ser Ser Asp Thr Ser Val Thr Val Gln Lys
            910                    915                    920
```

```
ttc tat gca aaa gag gga atg gct aca ttg atg gct gaa tgg ttg tct   6824
Phe Tyr Ala Lys Glu Gly Met Ala Thr Leu Met Ala Glu Trp Leu Ser
            925                    930                    935
```

```
gaa gat gat tat tcg ctg gat aat ctg aaa ctt gtt caa gct att ctc   6872
Glu Asp Asp Tyr Ser Leu Asp Asn Leu Lys Leu Val Gln Ala Ile Leu
            940                    945                    950
```

```
aaa gct ctt cac act gaa cta ttc gat tcg tgc gcc aaa aat gat cga   6920
Lys Ala Leu His Thr Glu Leu Phe Asp Ser Cys Ala Lys Asn Asp Arg
955                    960                    965                    970
```

```
ctc tta cga gat tct aca tca cga tgg gtc aat gcg aaa atg gat gaa   6968
Leu Leu Arg Asp Ser Thr Ser Arg Trp Val Asn Ala Lys Met Asp Glu
                    975                    980                    985
```

```
tat gtt gat ata caa gtg ata gct gat tca ctt att gct tgt gtt gaa   7016
Tyr Val Asp Ile Gln Val Ile Ala Asp Ser Leu Ile Ala Cys Val Glu
                    990                    995                    1000
```

```
gat ccc gta cag gag tac aag gat gtt tgc aaa gtt ata gag           7058
Asp Pro Val Gln Glu Tyr Lys Asp Val Cys Lys Val Ile Glu
            1005                    1010                    1015
```

```
gtatatacat attaattttt aaaaaagaat attttttgca tgtcacaaaa tatttggaaa 7118
ttttcccgaa aaacccatga aatcaaaaaa caaattaaat agtaaaatta tttcctccta 7178
cgaacatttt tcgatttttc gttttccgat attcctttta aaaatctgat ttaaaaaaaa 7238
aaaacttaaa ttttaggtct ttttgctcct ttttagaagc aatttatatg ttttttaaaa 7298
caaaacttaa aattagcatt tttatgggta attttctgaa cacatttttt tttcgaaaaa 7358
aatggccaga atttcaacca cttctccgta aaatcgaaat taactaattt tttctctata 7418
cattttttcaa aaaaagactc ctcatttatt gtattagata caaatatatg ttttcctcat 7478
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aaattttcta attttgaaac gatattatac aatttcagcg ccatcaattt aactaattaa 7598
ataatttcag aaa ggt ctc gtc gaa aac ttc aca aga gcc aaa gag atg    7647
            Lys Gly Leu Val Glu Asn Phe Thr Arg Ala Lys Glu Met
                    1020                    1025
```

```
gcc tat cgg tta aat caa tac tgg ttc aat cga tca gtg agc ttc aaa   7695
Ala Tyr Arg Leu Asn Gln Tyr Trp Phe Asn Arg Ser Val Ser Phe Lys
1030                    1035                    1040                    1045
```

```
att cca aaa aag ata cgt gat cct gtg cca aaa gat gtt cca gtc aga   7743
Ile Pro Lys Lys Ile Arg Asp Pro Val Pro Lys Asp Val Pro Val Arg
                    1050                    1055                    1060
```

```
caa gaa gat gct aca aca tca tca caa tct cat gat aat agt agt aga   7791
Gln Glu Asp Ala Thr Thr Ser Ser Gln Ser His Asp Asn Ser Ser Arg
                    1065                    1070                    1075
```

```
act gta tca ccg aat cat cga cat cat tca tct tca tat tca aat tca   7839
Thr Val Ser Pro Asn His Arg His His Ser Ser Ser Tyr Ser Asn Ser
            1080                    1085                    1090
```

```
tgt tat caa gaa cga gaa cca tct cat ata cga ttc ttt aat aat gga    7887
Cys Tyr Gln Glu Arg Glu Pro Ser His Ile Arg Phe Phe Asn Asn Gly
    1095                1100                1105

aat gat gtt cat caa tat cgt ttt gga ggt tat cat gga aat aac tac    7935
Asn Asp Val His Gln Tyr Arg Phe Gly Gly Tyr His Gly Asn Asn Tyr
1110                1115                1120                1125

aat gat aac tat ttc agt aga agg ccc aat aag gat tca tat cga gat    7983
Asn Asp Asn Tyr Phe Ser Arg Arg Pro Asn Lys Asp Ser Tyr Arg Asp
                1130                1135                1140

cgc cgt cga ttt aat gga cgt cgt tcg aga agt cga tca aga agt gtc    8031
Arg Arg Arg Phe Asn Gly Arg Arg Ser Arg Ser Arg Ser Arg Ser Val
                1145                1150                1155

tca cca cag aac tat aaa aga aga aaa ctc gat gaa cat gac aat aat    8079
Ser Pro Gln Asn Tyr Lys Arg Arg Lys Leu Asp Glu His Asp Asn Asn
        1160                1165                1170

cat cgt cag cgt tct cca att cgt gat cgt cac aca tct ccc ggc ggc    8127
His Arg Gln Arg Ser Pro Ile Arg Asp Arg His Thr Ser Pro Gly Gly
    1175                1180                1185

gaa aag act cct agc tcg aat aat tct gga gaa cga aac tat aaa aga    8175
Glu Lys Thr Pro Ser Ser Asn Asn Ser Gly Glu Arg Asn Tyr Lys Arg
1190                1195                1200                1205

ctg gat att cga gga gct cgt ata aaa act ata aaa gaa gat ttg gaa    8223
Leu Asp Ile Arg Gly Ala Arg Ile Lys Thr Ile Lys Glu Asp Leu Glu
                1210                1215                1220

gct gct gct gct gct gct gct gct gct gct gta cca tca gaa gtg caa    8271
Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Val Pro Ser Glu Val Gln
                1225                1230                1235

gct tat cct cat gaa cat aca gct gta cat cag agt gtt tat cag atg    8319
Ala Tyr Pro His Glu His Thr Ala Val His Gln Ser Val Tyr Gln Met
        1240                1245                1250

cca ggt tat gag tct tat g gttggtttag tttttttaaa aatatcattt         8368
Pro Gly Tyr Glu Ser Tyr
    1255

accagggtgc catttttaaa aataaaaata actcggaaaa tatgtttta aaaaatttca 8428
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gaaagtcttg cttgtcgtat atcaaataaa aacatttttc ag ga gta tat gat cct 8784
                                              Gly Val Tyr Asp Pro
                                                  1260

gta aat ggt gtc tac atg tat cct cat cct ggc gct ggt tac tat cca    8832
Val Asn Gly Val Tyr Met Tyr Pro His Pro Gly Ala Gly Tyr Tyr Pro
1265                1270                1275                1280

cct gcc tat cca caa caa ccg att atg tta aca atg gac act ctt cca    8880
```

```
Pro Ala Tyr Pro Gln Gln Pro Ile Met Leu Thr Met Asp Thr Leu Pro
            1285             1290             1295

ccg aat gat cgt ctt ggt gaa ctt tac gag aaa gcc agt atc gag cag   8928
Pro Asn Asp Arg Leu Gly Glu Leu Tyr Glu Lys Ala Ser Ile Glu Gln
            1300             1305             1310

cta gc gtgagcattt tttagtttaa acctttcgga tttacctaga aaaatgttac      8983
Leu Ala


ctttgacgca aaattacggt agcaggtctc gtcgcgaccg aaatttttca gcggagtacg 9043
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gccactcgaa tataataaca catgaaataa aattaaaatt attacag t caa cga gat 9520
                                                        Gln Arg Asp
                                                        1315

gca att gtg aga caa gaa ctt gag ctg ata cgt att caa atc gaa aga   9568
Ala Ile Val Arg Gln Glu Leu Glu Leu Ile Arg Ile Gln Ile Glu Arg
            1320             1325             1330

aaa act gct caa aaa gaa gcg atc aag gcc gct tgc cgt cgt gct aac   9616
Lys Thr Ala Gln Lys Glu Ala Ile Lys Ala Ala Cys Arg Arg Ala Asn
    1335             1340             1345

gaa gaa gaa gct aaa cga caa gag gca ctt gca aag acg aaa tat gtt   9664
Glu Glu Glu Ala Lys Arg Gln Glu Ala Leu Ala Lys Thr Lys Tyr Val
1350             1355             1360             1365

tgg gcg att gca aag tca gaa gct gga gag acg tat tac tac aac aaa   9712
Trp Ala Ile Ala Lys Ser Glu Ala Gly Glu Thr Tyr Tyr Tyr Asn Lys
            1370             1375             1380

ata aca aaa gag acg cag tgg aca gca cca aca cca gtt caa ggt ctt   9760
Ile Thr Lys Glu Thr Gln Trp Thr Ala Pro Thr Pro Val Gln Gly Leu
            1385             1390             1395

ctc gaa ccg gct tgt ggt gca tct cct gat act aca gtt gtc att gct   9808
Leu Glu Pro Ala Cys Gly Ala Ser Pro Asp Thr Thr Val Val Ile Ala
            1400             1405             1410

gac gag att act gaa gaa gag caa caa gct gaa gtt ctg gag aag ccg   9856
Asp Glu Ile Thr Glu Glu Glu Gln Gln Ala Glu Val Leu Glu Lys Pro
    1415             1420             1425

cgt gtt gtt aag gaa gaa gtt atc gag cca ggt tca caa tct gaa act   9904
Arg Val Val Lys Glu Glu Val Ile Glu Pro Gly Ser Gln Ser Glu Thr
1430             1435             1440             1445

caa aaa gaa tct ccg gag aaa gtt cga gtt gtt gta ccg aaa gtt gaa   9952
Gln Lys Glu Ser Pro Glu Lys Val Arg Val Val Val Pro Lys Val Glu
            1450             1455             1460
```

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gtt gaa aga tca ccg tcg cca aaa tct tct cgt gat cgt gag aag gat    10000
Val Glu Arg Ser Pro Ser Pro Lys Ser Ser Arg Asp Arg Glu Lys Asp
            1465                1470                1475

cga gag aaa tct cgt gag aaa gat cgt gaa aga gat cgt gac aga aga    10048
Arg Glu Lys Ser Arg Glu Lys Asp Arg Glu Arg Asp Arg Asp Arg Arg
            1480                1485                1490

gaa ggt tca aaa cat cgt gat agt tat cat gga cat cga aac ggc agc    10096
Glu Gly Ser Lys His Arg Asp Ser Tyr His Gly His Arg Asn Gly Ser
            1495                1500                1505

agt tct gtc agt gaa cga cgt atg cga gag ttc aaa cat gag ctg gaa    10144
Ser Ser Val Ser Glu Arg Arg Met Arg Glu Phe Lys His Glu Leu Glu
1510                1515                1520                1525

cga tcc act cga tct gcc gtt cgt tct cgt cta caa cat caa cgt gac    10192
Arg Ser Thr Arg Ser Ala Val Arg Ser Arg Leu Gln His Gln Arg Asp
                1530                1535                1540

gct tct agt gat aag act act tgg ctt att aag tta ata tat cga gag    10240
Ala Ser Ser Asp Lys Thr Thr Trp Leu Ile Lys Leu Ile Tyr Arg Glu
            1545                1550                1555

att ttc aaa cga gaa agt gcg cag agt gga ttt gat tat cga ttc agt    10288
Ile Phe Lys Arg Glu Ser Ala Gln Ser Gly Phe Asp Tyr Arg Phe Ser
            1560                1565                1570

gag aat act gat aag aag gtaatattat ggaccaaaaa ataaacaatt          10336
Glu Asn Thr Asp Lys Lys
        1575

gaaaaaaaaa ccaaaaaaat ctgatgcttg aatttaaaaa aaaacaatga aagagtgcaa 10396
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               Val Lys Asn Tyr Val Lys Ser Tyr Ile Asp Arg
               1580                1585                1590

aaa ctc gaa tca aac gat ctc tgg aaa gaa tac tct cgg cca tga      10851
Lys Leu Glu Ser Asn Asp Leu Trp Lys Glu Tyr Ser Arg Pro  *
            1595                1600

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gcttgaaaat tgcagacatt tccgaaatta attaaattcc taacgagacc catggctcgg 11571
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tcgaaaagta attttcaaat tttgatccaa agaaattatt cgtcaatttt cagagtttta 11751
aaattccaac atcaagagca agaagatcgg aagctcaaat atgttctgca caaagctcac 11811
gagaatctga gaaagtgccc attcgagatt ctgacaattg                       11851
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<211> 1604
<212> PRT
<213> Caenorhabditis elegans

<400> 25

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1               5                   10                  15
Gln Thr Arg Arg Lys Thr Ala Ala Ala Val Gln Asp Gly Gly Ala Val
            20                  25                  30
Lys Glu Asn Lys Ala Lys Pro Pro Ala Pro Gln Thr Pro Thr Lys Arg
        35                  40                  45
Ala Lys Arg Gly Arg Pro Pro Lys Ile Lys Thr Asp Ala Asn Thr Leu
    50                  55                  60
Asn Thr Pro Ser Thr Ser Ser Asn Leu Val Asp Asp Lys Leu Leu Ile
65                  70                  75                  80
Glu Ser Glu Ser Gln Asp Ser Ile Leu Thr Asn Glu Ala Asp Ser Phe
                85                  90                  95
Leu Glu Lys Glu Val Glu Glu Ile Glu Asp Ser Ser Asp Ile Leu Pro
            100                 105                 110
Asp Lys Ile Asn Ser Pro Glu Lys Pro Ser Val Leu Val Lys Arg Arg
            115                 120                 125
Ser Ser Thr Arg Leu Lys Val Lys Thr Asp Glu Asp Glu Lys Asp Val
.   130                 135                 140
Pro Val Asn Ile Glu Val Ala Val Leu Glu Glu Lys Ser Ile Gln Ile
145                 150                 155                 160
Glu Pro Thr Ser Pro Ala His Pro Glu Asp Pro Gln Pro Ser Thr Ser
                165                 170                 175
Ser Leu Pro Leu Val Glu Pro Ile Glu Asp Ile Val Glu Pro Asn Glu
            180                 185                 190
Pro Thr Ser Ser Ala Asp Pro Pro Val Ser Asn Ile Lys Asp Glu Asp
            195                 200                 205
Ile Lys Glu Glu Glu Pro Leu Ile Lys Lys Pro Ala Ser Asp Glu Ser
    210                 215                 220
Glu Ser Met Asp Ile Ala Asn Ser Glu Ser Gly Asn Asp Ser Asp Ser
225                 230                 235                 240
Ser Glu Ala Asp Pro Arg Thr Ile Pro Ser Phe Ser Ile Pro Leu Pro
                245                 250                 255
Asp Thr Pro Pro Pro Asn Phe Ala Lys Arg Gly Glu Ile His Val Asp
            260                 265                 270
Val Asp Gln Lys Asn Ser Lys Gln Ser Gly Glu Ser Gln Ser Pro Trp
            275                 280                 285
Glu Arg Ala Arg Glu Lys Ser Ala Ser Asn Pro Leu Ser Ser Pro Thr
    290                 295                 300
Met Ser Arg Pro Arg Ile His Phe Leu His Pro Ala Tyr Gln Ser Phe
305                 310                 315                 320
Thr Asn Asp Ser Val Ser Pro Leu Pro Pro Pro Pro Glu Pro Ala
                325                 330                 335
Pro Ala Arg Glu Lys Val Glu Asn Gly Gly Pro Thr Thr Phe Lys Met
            340                 345                 350
Thr Phe Lys Lys Ala Ala Asn Ile Pro Ile Leu Lys Thr Ser Ala Phe
            355                 360                 365
Glu Gln Pro Ser Ser Pro Pro Pro Ser Ser Ser Val Ser Ser Ser Ile
```

```
         370                      375                      380
Ser Leu Ser Glu Val Asn Ser Ser Thr Ser Ile Ala Ser Glu Ser Ser
385                      390                      395                      400
Pro Ala Lys Arg Ser Ser Asn Phe Asp Leu Thr Ala Ser Asn Glu Leu
                 405                      410                      415
Pro Pro Pro Gln Met Val Glu Leu Pro Lys Leu Ser Phe Phe Asn Met
                 420                      425                      430
Pro Pro Ala Val Arg Ser Ala Glu Asp Asp Ser Ala Met Thr Ser Glu
                 435                      440                      445
Glu Pro Ile Leu Leu Leu Arg Ser Pro Asn Ser Ala Thr Pro Asp Asp
                 450                      455                      460
Asp Ala Leu Phe Leu Thr Thr Pro Pro Pro Lys Met Thr Glu Ser
465                      470                      475                      480
Glu Ile Gln Ala Leu Lys Val Ala Thr Glu Lys Val Asn Gln Val Ile
                 485                      490                      495
Ala Arg Arg Glu Asp Ser Glu Lys Asp Val Arg His Arg Glu Asp Arg
                 500                      505                      510
Asp Asp Tyr Asp Arg Arg Arg Asp Asp Arg Asp Arg Arg Ser Arg Lys
                 515                      520                      525
Thr Asp Ser Glu Arg Asn Asp Gln Arg Gly Arg Gln Arg Glu Asp Asp
                 530                      535                      540
Glu Arg Arg Ala Arg Glu Arg Glu Arg Glu Val Thr Lys Arg His Asp
545                      550                      555                      560
Arg Glu Arg Glu Glu Met Arg Leu Gln Lys Gln Lys Asp Glu Glu Arg
                 565                      570                      575
Arg Lys Lys Asp Glu Glu Glu Arg Ile Gln Lys Glu Asn Asp Glu Lys
                 580                      585                      590
Lys Gln Lys Glu Asp Glu Ala Lys Met Glu Glu Glu Lys Lys Lys Ile
                 595                      600                      605
Lys Glu Glu Glu Met Lys Ile Pro Glu Phe Glu Leu Ile Ser Glu Ser
                 610                      615                      620
Lys Tyr Leu Thr Arg Asn Ala Asn Lys Lys Lys Thr Glu Ser Leu Thr
625                      630                      635                      640
Cys Glu Cys His Arg Thr Gly Gly Asn Cys Ser Asp Asn Thr Cys Val
                 645                      650                      655
Asn Arg Ala Met Leu Thr Glu Cys Pro Ser Ser Cys Gln Val Lys Cys
                 660                      665                      670
Lys Asn Gln Arg Phe Ala Lys Lys Lys Tyr Ala Ala Val Glu Ala Phe
                 675                      680                      685
His Thr Gly Thr Ala Lys Gly Cys Gly Leu Arg Ala Val Lys Asp Ile
                 690                      695                      700
Lys Lys Gly Arg Phe Ile Ile Glu Tyr Ile Gly Glu Val Val Glu Arg
705                      710                      715                      720
Asp Asp Tyr Glu Lys Arg Lys Thr Lys Tyr Ala Ala Asp Lys Lys His
                 725                      730                      735
Lys His His Tyr Leu Cys Asp Thr Gly Val Tyr Thr Ile Asp Ala Thr
                 740                      745                      750
Val Tyr Gly Asn Pro Ser Arg Phe Val Asn His Ser Cys Asp Pro Asn
                 755                      760                      765
Ala Ile Cys Glu Lys Trp Ser Val Pro Arg Thr Pro Gly Asp Val Asn
                 770                      775                      780
Arg Val Gly Phe Phe Ser Lys Arg Phe Ile Lys Ala Gly Glu Glu Ile
785                      790                      795                      800
Thr Phe Asp Tyr Gln Phe Val Asn Tyr Gly Arg Asp Ala Gln Gln Cys
                 805                      810                      815
Phe Cys Gly Ser Ala Ser Cys Ser Gly Trp Ile Gly Gln Lys Pro Glu
                 820                      825                      830
Glu Phe Ser Ser Asp Glu Asp Asp Ile Val Thr Thr Arg His Ile
                 835                      840                      845
```

```
Asn Met Asp Glu Glu Glu Glu Glu Lys Leu Glu Gly Leu Asp His Leu
    850                 855                 860
Gly Asn His Glu Arg Asn Glu Val Ile Lys Asp Met Leu Asp Asp Leu
865                 870                 875                 880
Val Ile Arg Asn Lys Lys His Ala Arg Lys Val Ile Thr Ile Ala Ser
                885                 890                 895
Ala Met Thr Asp Tyr Ser Gln Arg Val Asp Val Ile Gln Glu Ile Phe
            900                 905                 910
Ser Ser Asp Thr Ser Val Thr Val Gln Lys Phe Tyr Ala Lys Glu Gly
        915                 920                 925
Met Ala Thr Leu Met Ala Glu Trp Leu Ser Glu Asp Asp Tyr Ser Leu
    930                 935                 940
Asp Asn Leu Lys Leu Val Gln Ala Ile Leu Lys Ala Leu His Thr Glu
945                 950                 955                 960
Leu Phe Asp Ser Cys Ala Lys Asn Asp Arg Leu Leu Arg Asp Ser Thr
                965                 970                 975
Ser Arg Trp Val Asn Ala Lys Met Asp Glu Tyr Val Asp Ile Gln Val
            980                 985                 990
Ile Ala Asp Ser Leu Ile Ala Cys Val Glu Asp Pro Val Gln Glu Tyr
        995                 1000                1005
Lys Asp Val Cys Lys Val Ile Glu Lys Gly Leu Val Glu Asn Phe Thr
    1010                1015                1020
Arg Ala Lys Glu Met Ala Tyr Arg Leu Asn Gln Tyr Trp Phe Asn Arg
1025                1030                1035                1040
Ser Val Ser Phe Lys Ile Pro Lys Lys Ile Arg Asp Pro Val Pro Lys
                1045                1050                1055
Asp Val Pro Val Arg Gln Glu Asp Ala Thr Thr Ser Ser Gln Ser His
            1060                1065                1070
Asp Asn Ser Ser Arg Thr Val Ser Pro Asn His Arg His His Ser Ser
        1075                1080                1085
Ser Tyr Ser Asn Ser Cys Tyr Gln Glu Arg Glu Pro Ser His Ile Arg
    1090                1095                1100
Phe Phe Asn Asn Gly Asn Asp Val His Gln Tyr Arg Phe Gly Gly Tyr
1105                1110                1115                1120
His Gly Asn Asn Tyr Asn Asp Asn Tyr Phe Ser Arg Arg Pro Asn Lys
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Asp Ser Tyr Arg Asp Arg Arg Arg Phe Asn Gly Arg Arg Ser Arg Ser
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Glu His Asp Asn Asn His Arg Gln Arg Ser Pro Ile Arg Asp Arg His
    1170                1175                1180
Thr Ser Pro Gly Gly Glu Lys Thr Pro Ser Ser Asn Asn Ser Gly Glu
1185                1190                1195                1200
Arg Asn Tyr Lys Arg Leu Asp Ile Arg Gly Ala Arg Ile Lys Thr Ile
                1205                1210                1215
Lys Glu Asp Leu Glu Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Val
            1220                1225                1230
Pro Ser Glu Val Gln Ala Tyr Pro His Glu His Thr Ala Val His Gln
        1235                1240                1245
Ser Val Tyr Gln Met Pro Gly Tyr Glu Ser Tyr Gly Val Tyr Asp Pro
    1250                1255                1260
Val Asn Gly Val Tyr Met Tyr Pro His Pro Gly Ala Gly Tyr Tyr Pro
1265                1270                1275                1280
Pro Ala Tyr Pro Gln Gln Pro Ile Met Leu Thr Met Asp Thr Leu Pro
                1285                1290                1295
Pro Asn Asp Arg Leu Gly Glu Leu Tyr Glu Lys Ala Ser Ile Glu Gln
            1300                1305                1310
Leu Ala Gln Arg Asp Ala Ile Val Arg Gln Glu Leu Glu Leu Ile Arg
```

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            1315                1320                1325
Ile Gln Ile Glu Arg Lys Thr Ala Gln Lys Glu Ala Ile Lys Ala Ala
        1330                1335                1340
Cys Arg Arg Ala Asn Glu Glu Glu Ala Lys Arg Gln Glu Ala Leu Ala
1345                1350                1355                1360
Lys Thr Lys Tyr Val Trp Ala Ile Ala Lys Ser Glu Ala Gly Glu Thr
                1365                1370                1375
Tyr Tyr Tyr Asn Lys Ile Thr Lys Glu Thr Gln Trp Thr Ala Pro Thr
            1380                1385                1390
Pro Val Gln Gly Leu Leu Glu Pro Ala Cys Gly Ala Ser Pro Asp Thr
            1395                1400                1405
Thr Val Val Ile Ala Asp Glu Ile Thr Glu Glu Glu Gln Gln Ala Glu
        1410                1415                1420
Val Leu Glu Lys Pro Arg Val Val Lys Glu Glu Val Ile Glu Pro Gly
1425                1430                1435                1440
Ser Gln Ser Glu Thr Gln Lys Glu Ser Pro Glu Lys Val Arg Val Val
                1445                1450                1455
Val Pro Lys Val Glu Val Glu Arg Ser Pro Ser Pro Lys Ser Ser Arg
            1460                1465                1470
Asp Arg Glu Lys Asp Arg Glu Lys Ser Arg Glu Lys Asp Arg Glu Arg
        1475                1480                1485
Asp Arg Asp Arg Arg Glu Gly Ser Lys His Arg Asp Ser Tyr His Gly
        1490                1495                1500
His Arg Asn Gly Ser Ser Ser Val Ser Glu Arg Arg Met Arg Glu Phe
1505                1510                1515                1520
Lys His Glu Leu Glu Arg Ser Thr Arg Ser Ala Val Arg Ser Arg Leu
                1525                1530                1535
Gln His Gln Arg Asp Ala Ser Ser Asp Lys Thr Thr Trp Leu Ile Lys
            1540                1545                1550
Leu Ile Tyr Arg Glu Ile Phe Lys Arg Glu Ser Ala Gln Ser Gly Phe
            1555                1560                1565
Asp Tyr Arg Phe Ser Glu Asn Thr Asp Lys Lys Val Lys Asn Tyr Val
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Lys Ser Tyr Ile Asp Arg Lys Leu Glu Ser Asn Asp Leu Trp Lys Glu
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Tyr Ser Arg Pro
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                                            Met Asp Gln Gln Glu
                                             1   5

cca tcg aat aac gta gat acg agc agt att ctt tcg gat gat ggg atg   1063
Pro Ser Asn Asn Val Asp Thr Ser Ser Ile Leu Ser Asp Asp Gly Met
             10   15   20

gaa aca cag gaa caa agt tca ttc gtc act gct gtgagtgaaa ttatttaaaa 1116
Glu Thr Gln Glu Gln Ser Ser Phe Val Thr Ala
         25   30

tttcgcttcg gagattcatt gtcatataat tcaatttatc gattttcag aca att gac 1174
                                                       Thr Ile Asp
                                                              35

cta aca gtg gac gac tac gat gaa aca gaa ata cag gag att ctg gat   1222
Leu Thr Val Asp Asp Tyr Asp Glu Thr Glu Ile Gln Glu Ile Leu Asp
             40   45   50

aat gga aaa gca gaa gaa gga aca gat gaa gat tct gat tta gtt gaa   1270
Asn Gly Lys Ala Glu Glu Gly Thr Asp Glu Asp Ser Asp Leu Val Glu
             55   60   65

ggg att ctt aac gct aat tca gat gtc caa gcg ctc ctt gat gcg cca   1318
Gly Ile Leu Asn Ala Asn Ser Asp Val Gln Ala Leu Leu Asp Ala Pro
         70   75   80

tct gag caa gta gct caa gct ctt aat tcg ttc ttc gga aat gag agt   1366
Ser Glu Gln Val Ala Gln Ala Leu Asn Ser Phe Phe Gly Asn Glu Ser
     85   90   95

gaa caa gaa gct gtt gca gca caa aga cgg gtt gat gcg gag aag act   1414
Glu Gln Glu Ala Val Ala Ala Gln Arg Arg Val Asp Ala Glu Lys Thr
100   105   110   115

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gcc aaa gat gaa gct gaa ctc aag caa cag gaa gag gcg gttagattgc     1463
Ala Lys Asp Glu Ala Glu Leu Lys Gln Gln Glu Glu Ala
            120                 125

aataaaggaa acaataataa aattatttta ttttcag gaa gat ctt att ata gaa    1518
                                          Glu Asp Leu Ile Ile Glu
                                              130

gat tcg ata gtc aaa act gat gaa gaa aaa caa gca gtt cga aga ctg    1566
Asp Ser Ile Val Lys Thr Asp Glu Glu Lys Gln Ala Val Arg Arg Leu
135             140             145                 150

aaa atc aac gaa ttt tta tcg tgg ttc aca agg ctc ctt cca gaa caa    1614
Lys Ile Asn Glu Phe Leu Ser Trp Phe Thr Arg Leu Leu Pro Glu Gln
                155             160                 165

ttt aaa aat ttc gaa ttc aca aat ccg aac tat ctg aca gaa tct atc    1662
Phe Lys Asn Phe Glu Phe Thr Asn Pro Asn Tyr Leu Thr Glu Ser Ile
            170                 175                 180

agc gat tca ccg gtt gta aat gtc gat aaa tgc aag gaa att gtc aaa    1710
Ser Asp Ser Pro Val Val Asn Val Asp Lys Cys Lys Glu Ile Val Lys
            185                 190                 195

tcg ttc aag gaa agt gaa tca ctt gag gga ctt tca cag aaa tac gaa    1758
Ser Phe Lys Glu Ser Glu Ser Leu Glu Gly Leu Ser Gln Lys Tyr Glu
    200                 205                 210

tta att gat gaa gac gtg cta gtc gct gct att tgt att ggc gtt ctc    1806
Leu Ile Asp Glu Asp Val Leu Val Ala Ala Ile Cys Ile Gly Val Leu
215                 220                 225                 230

gat acc aac aac gaa gaa gat gtc gac ttt aat gtt cta tgt gat gat    1854
Asp Thr Asn Asn Glu Glu Asp Val Asp Phe Asn Val Leu Cys Asp Asp
                235                 240                 245

cgt atc gac gat tgg agt ata gaa aaa tgt gtc act ttt ctt gat tat    1902
Arg Ile Asp Asp Trp Ser Ile Glu Lys Cys Val Thr Phe Leu Asp Tyr
                250                 255                 260

cca aat act gga ttg aat tcg aaa aat gga ccg ttg aga ttc atg cag    1950
Pro Asn Thr Gly Leu Asn Ser Lys Asn Gly Pro Leu Arg Phe Met Gln
            265                 270                 275

ttt act gtc aca tca cct gca tca gca att ctc atg ctc act ctg att    1998
Phe Thr Val Thr Ser Pro Ala Ser Ala Ile Leu Met Leu Thr Leu Ile
            280                 285                 290

cga tta cgc gaa gaa ggg cat ccg tgt cga tta gat ttt gat tca aat    2046
Arg Leu Arg Glu Glu Gly His Pro Cys Arg Leu Asp Phe Asp Ser Asn
295                 300                 305                 310

ccg act gat gat tta ctc ttg aat ttc gat caa gtg gaa ttt tct aat    2094
Pro Thr Asp Asp Leu Leu Leu Asn Phe Asp Gln Val Glu Phe Ser Asn
            315                 320                 325

aat atc att gat acg gca gtc aaa tac tgg gat gat cag aag gaa aac    2142
Asn Ile Ile Asp Thr Ala Val Lys Tyr Trp Asp Asp Gln Lys Glu Asn
            330                 335                 340
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ggt gcg cag gat aaa att ggc agg cga gta tta atc aaa ctc aca act    2190
Gly Ala Gln Asp Lys Ile Gly Arg Arg Val Leu Ile Lys Leu Thr Thr
        345             350             355

gtt ttg aaa gtattttcat aattatcact taaatacctt ttagagagct            2239
Val Leu Lys
    360

caacgacttc ttccacgaaa tcgagtcaac atcagcagaa ttcaaacaac attttgag    2297
aac gcc gtt ggc agc cgt aat gaa ata att caa ctt gtc aac gag aaa    2345
Asn Ala Val Gly Ser Arg Asn Glu Ile Ile Gln Leu Val Asn Glu Lys
        365             370             375

att ccc gat ttt gat ggc act gag gct gct gtg aat gag agt ttt aca    2393
Ile Pro Asp Phe Asp Gly Thr Glu Ala Ala Val Asn Glu Ser Phe Thr
        380             385             390

tcc gat caa cga acc gaa att atc aac tct cgt gca ata atg gag aca    2441
Ser Asp Gln Arg Thr Glu Ile Ile Asn Ser Arg Ala Ile Met Glu Thr
        395             400             405

tta aaa gcc gag atg aag ctc gcc atc gcc gaa gct cag aaa gtt tac    2489
Leu Lys Ala Glu Met Lys Leu Ala Ile Ala Glu Ala Gln Lys Val Tyr
410             415             420             425

gac acc aag act gac ttc gaa aaa ttc ttc gtt ttg aca gtt gga gat    2537
Asp Thr Lys Thr Asp Phe Glu Lys Phe Phe Val Leu Thr Val Gly Asp
            430             435             440

ttc tgt ctg gct cgc gcc aat cct tct gac gat gca gaa tta aca tac    2585
Phe Cys Leu Ala Arg Ala Asn Pro Ser Asp Asp Ala Glu Leu Thr Tyr
        445             450             455

gcc ata gtt cag gat cgt gtg gat gca atg acc tat aag gtt aaa ttt    2633
Ala Ile Val Gln Asp Arg Val Asp Ala Met Thr Tyr Lys Val Lys Phe
        460             465             470

atc gac aca agt cag atc aga gag tgt aac atc aga gat tta gcc atg    2681
Ile Asp Thr Ser Gln Ile Arg Glu Cys Asn Ile Arg Asp Leu Ala Met
    475             480             485

act acg cag gga atg tat gac ccg agt ttg aat aca ttt ggt gat gtt    2729
Thr Thr Gln Gly Met Tyr Asp Pro Ser Leu Asn Thr Phe Gly Asp Val
490             495             500             505

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                                     Gly Leu Arg Val Ala Cys Arg
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caa gtt att tcc tcg agc caa ttt gga aaa aaa aca att tgg ctt acc    3301
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Gln Val Ile Ser Ser Ser Gln Phe Gly Lys Lys Thr Ile Trp Leu Thr
        515             520             525

ggt aca gct gcc gga cgt cgc aga gct cat aga tcc gat ttt cta att    3349
Gly Thr Ala Ala Gly Arg Arg Arg Ala His Arg Ser Asp Phe Leu Ile
        530             535             540

ttc ttc gac aac gga acc gat gca tac gtg tca gct ccg aca atg cct    3397
Phe Phe Asp Asn Gly Thr Asp Ala Tyr Val Ser Ala Pro Thr Met Pro
545             550             555             560

ggt gaa cca ggt tat gaa gtt gct tct gaa aag aaa agt gta ttt tct    3445
Gly Glu Pro Gly Tyr Glu Val Ala Ser Glu Lys Lys Ser Val Phe Ser
                565             570             575

ctc aaa gaa atg att gcg aag atg aat gct gct cag att gct att atg    3493
Leu Lys Glu Met Ile Ala Lys Met Asn Ala Ala Gln Ile Ala Ile Met
            580             585             590

gtt gga cag cca gta gga aag gaa gga aat ctg gat tat ttt ttg aca    3541
Val Gly Gln Pro Val Gly Lys Glu Gly Asn Leu Asp Tyr Phe Leu Thr
        595             600             605

ttt cat tgg att cga caa tct cac aga tca gcg tat att cgg gat ttt    3589
Phe His Trp Ile Arg Gln Ser His Arg Ser Ala Tyr Ile Arg Asp Phe
610             615             620

atg aaa gaa ttt ccg gaa tgg cca ctt ctc aag atg cca gtt gga atg    3637
Met Lys Glu Phe Pro Glu Trp Pro Leu Leu Lys Met Pro Val Gly Met
625             630             635             640

cga atc tgt ttg tac aat tct ctt gtt gat cga cgt aag aaa atg gtg    3685
Arg Ile Cys Leu Tyr Asn Ser Leu Val Asp Arg Arg Lys Lys Met Val
                645             650             655

aca gtg att gga act gat cga gct ttt gct att gtg aga cac gaa gca    3733
Thr Val Ile Gly Thr Asp Arg Ala Phe Ala Ile Val Arg His Glu Ala
                660             665             670

ccg aat cca ttg gct cct ggg aat aga tgt aca gac ttt ccg tgc aat    3781
Pro Asn Pro Leu Ala Pro Gly Asn Arg Cys Thr Asp Phe Pro Cys Asn
        675             680             685

gat aga aat cat cag cat att gac gag aaa atc tat aga gga tct cat    3829
Asp Arg Asn His Gln His Ile Asp Glu Lys Ile Tyr Arg Gly Ser His
        690             695             700

aga ttg gaa ggc gca gcg gtaagatttt atttgaaaaa ttgatacaaa          3877
Arg Leu Glu Gly Ala Ala
705             710

acgaggattt tctaaaatta ttttattttt atttgatttg atttcttata attgataatc 3937
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agaaatcatg aaaattttgt attatttcag cac aag aag cac atg atc tcg aca 4171
                                    His Lys Lys His Met Ile Ser Thr
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aat aac aat ctg tcg caa cgc aga aaa gac cag ctt caa tca cag ttc        4219
Asn Asn Asn Leu Ser Gln Arg Arg Lys Asp Gln Leu Gln Ser Gln Phe
    720                 725             730

gag cca acc gac atg att cgt tcg atg cca gag agg aat cac caa caa        4267
Glu Pro Thr Asp Met Ile Arg Ser Met Pro Glu Arg Asn His Gln Gln
735                 740             745                 750

gtc gtt aaa aag aaa acg acg ggc acc aat cag aat gtc gct tcg aca        4315
Val Val Lys Lys Lys Thr Thr Gly Thr Asn Gln Asn Val Ala Ser Thr
            755                 760                 765

aat gat gca aaa tcg aag aga gaa att gaa ata aga aag aaa aat caa        4363
Asn Asp Ala Lys Ser Lys Arg Glu Ile Glu Ile Arg Lys Lys Asn Gln
            770                 775             780

ttc tta ttt aac aag att att gtt cca ata ccc gtc cta aca cca ttg        4411
Phe Leu Phe Asn Lys Ile Ile Val Pro Ile Pro Val Leu Thr Pro Leu
        785                 790             795

gaa aat ctc aag gct cat gct caa tgt ggt cca gat tgt cta cag aaa        4459
Glu Asn Leu Lys Ala His Ala Gln Cys Gly Pro Asp Cys Leu Gln Lys
    800                 805             810

atg gat gcg gat ccg tat gaa gca aga ttc cat cga aat tca cca ata        4507
Met Asp Ala Asp Pro Tyr Glu Ala Arg Phe His Arg Asn Ser Pro Ile
815                 820             825                 830

cat act cct ctt ttg tgt ggt tgg aga cga att atg tac aca atg agt        4555
His Thr Pro Leu Leu Cys Gly Trp Arg Arg Ile Met Tyr Thr Met Ser
            835                 840             845

act gga aag aag cgg gga gca gtg aag aaa aac att att tac ttt tct        4603
Thr Gly Lys Lys Arg Gly Ala Val Lys Lys Asn Ile Ile Tyr Phe Ser
            850                 855             860

cca tgc gga gcc gct ctt cac cag atc agc gac gtc tct gaa tat att        4651
Pro Cys Gly Ala Ala Leu His Gln Ile Ser Asp Val Ser Glu Tyr Ile
            865                 870             875

cat gtc acc aga agt tta ttg acg att gat tgt ttt tca ttt gat gca        4699
His Val Thr Arg Ser Leu Leu Thr Ile Asp Cys Phe Ser Phe Asp Ala
        880                 885             890

cga atc gat act gcc act tat att act gtt gac gat aaa tat ttg aag        4747
Arg Ile Asp Thr Ala Thr Tyr Ile Thr Val Asp Asp Lys Tyr Leu Lys
895                 900             905                 910

gtt gct gat ttt tcg ctt gga acc gaa gga atc cca att cca cta gtg        4795
Val Ala Asp Phe Ser Leu Gly Thr Glu Gly Ile Pro Ile Pro Leu Val
            915                 920             925

aac agc gtg gat aac gat gag cct cca tca ttg gaa tat tcg aaa cga        4843
Asn Ser Val Asp Asn Asp Glu Pro Pro Ser Leu Glu Tyr Ser Lys Arg
            930                 935             940

cga ttc caa tac aat gat caa gtg gat ata tcg agt gtt agc cga gat        4891
Arg Phe Gln Tyr Asn Asp Gln Val Asp Ile Ser Ser Val Ser Arg Asp
            945                 950             955
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ttc tgt tct gga tgc tct tgt gat ggt gat tgc agt gac gca tcg aag    4939
Phe Cys Ser Gly Cys Ser Cys Asp Gly Asp Cys Ser Asp Ala Ser Lys
    960             965             970

tgt gaa tgc caa caa ttg tcc att gaa gca atg aaa cga ctc ccc cat    4987
Cys Glu Cys Gln Gln Leu Ser Ile Glu Ala Met Lys Arg Leu Pro His
975             980             985                 990

aat tta caa ttc gac gga cac gac gaa ttg tat gag agt tca gaa aaa    5035
Asn Leu Gln Phe Asp Gly His Asp Glu Leu Tyr Glu Ser Ser Glu Lys
            995             1000            1005

caa aat aaa ttt tta aaa cta ttt ttt ttc aga gtt cct cac tat caa    5083
Gln Asn Lys Phe Leu Lys Leu Phe Phe Phe Arg Val Pro His Tyr Gln
            1010            1015            1020

aat cgt ctt ctc agc agt aag gtt atc agt gga ctc tat gaa tgc aac    5131
Asn Arg Leu Leu Ser Ser Lys Val Ile Ser Gly Leu Tyr Glu Cys Asn
            1025            1030            1035

gat cag tgt tca tgc cat cga aag tct tgt tac aac aga gtt gtt cag    5179
Asp Gln Cys Ser Cys His Arg Lys Ser Cys Tyr Asn Arg Val Val Gln
        1040            1045            1050

aac aat atc aag tat cct atg cat gtg agt tta ttt aac gat gat aca    5227
Asn Asn Ile Lys Tyr Pro Met His Val Ser Leu Phe Asn Asp Asp Thr
1055            1060            1065            1070

tac caa tta ttg ttt ttt ctt cag atc ttc aaa act gct caa tcc gga    5275
Tyr Gln Leu Leu Phe Phe Leu Gln Ile Phe Lys Thr Ala Gln Ser Gly
            1075            1080            1085

tgg gga gtc cga gct ttg acg gat att cct caa agt acg ttc att tgc    5323
Trp Gly Val Arg Ala Leu Thr Asp Ile Pro Gln Ser Thr Phe Ile Cys
            1090            1095            1100

acg tat gta ggt gct ata ctg acg gat gat ttg gct gat gaa cta aga    5371
Thr Tyr Val Gly Ala Ile Leu Thr Asp Asp Leu Ala Asp Glu Leu Arg
        1105            1110            1115

aat gcg gat caa tac ttc gct gat ttg gac ttg aag gat acc gtg gag    5419
Asn Ala Asp Gln Tyr Phe Ala Asp Leu Asp Leu Lys Asp Thr Val Glu
        1120            1125            1130

ctg gaa aag ggt cgc gaa gat cat gaa act gat ttt ggt tac gga gga    5467
Leu Glu Lys Gly Arg Glu Asp His Glu Thr Asp Phe Gly Tyr Gly Gly
1135            1140            1145            1150

gac gag tca gat tat gat gac gaa gaa gga agt gat ggt gac tcc ggt    5515
Asp Glu Ser Asp Tyr Asp Asp Glu Glu Gly Ser Asp Gly Asp Ser Gly
            1155            1160            1165

gat gat gta atg aac aaa atg gtg aaa cgt caa gac tct tcg gag agt    5563
Asp Asp Val Met Asn Lys Met Val Lys Arg Gln Asp Ser Ser Glu Ser
        1170            1175            1180

ggt gaa gaa aca aaa cgg ctg aca aga cag aaa aga aag caa tct aaa    5611
Gly Glu Glu Thr Lys Arg Leu Thr Arg Gln Lys Arg Lys Gln Ser Lys
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aaa tcc ggt aaa gga gga agt gtg gag aaa gat gac acc act cca aga   5659
Lys Ser Gly Lys Gly Gly Ser Val Glu Lys Asp Asp Thr Thr Pro Arg
    1200             1205              1210

gat tca atg gaa aag gat aat att gaa agt aaa gac gaa ccc gtt ttc   5707
Asp Ser Met Glu Lys Asp Asn Ile Glu Ser Lys Asp Glu Pro Val Phe
1215             1220              1225              1230

aat tgg gat aag tat ttt gag ccg ttt cca ttg tat gtt ata gat gca   5755
Asn Trp Asp Lys Tyr Phe Glu Pro Phe Pro Leu Tyr Val Ile Asp Ala
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aaa cag aga gga aat ctt gga ag gtaagatcac aatttattc attaaaaaaa   5808
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ag a ttc ttg aat cac tct tgc gat ccg aat gtg cac gtt caa cac gtc   6156
    Phe Leu Asn His Ser Cys Asp Pro Asn Val His Val Gln His Val
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atg tac gat acg cat gat ctt cgt ctt cca tgg gtc gcg ttt ttc aca   6204
Met Tyr Asp Thr His Asp Leu Arg Leu Pro Trp Val Ala Phe Phe Thr
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cga aaa tac gtg aaa gcc ggc gat gag cta acc tgg gac tat caa tat   6252
Arg Lys Tyr Val Lys Ala Gly Asp Glu Leu Thr Trp Asp Tyr Gln Tyr
             1290              1295              1300

act caa gat cag acg gct acc aca caa ctc aca tgc cac tgc gga gct   6300
Thr Gln Asp Gln Thr Ala Thr Thr Gln Leu Thr Cys His Cys Gly Ala
             1305              1310              1315

gaa aac tgc acc ggc cgt ttg ctg aaa agt taa agaattgttg ttatttcctt   6353
Glu Asn Cys Thr Gly Arg Leu Leu Lys Ser  *
             1320              1325

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Ser Asp Asp Gly Met Glu Thr Gln Glu Gln Ser Ser Phe Val Thr Ala
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Thr Ile Asp Leu Thr Val Asp Asp Tyr Asp Glu Thr Glu Ile Gln Glu
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Ile Leu Asp Asn Gly Lys Ala Glu Glu Gly Thr Asp Glu Asp Ser Asp
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Leu Val Glu Gly Ile Leu Asn Ala Asn Ser Asp Val Gln Ala Leu Leu
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Asp Ala Pro Ser Glu Gln Val Ala Gln Ala Leu Asn Ser Phe Phe Gly
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Asn Glu Ser Glu Gln Glu Ala Val Ala Ala Gln Arg Arg Val Asp Ala
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Glu Lys Thr Ala Lys Asp Glu Ala Glu Leu Lys Gln Gln Glu Glu Ala
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Glu Asp Leu Ile Ile Glu Asp Ser Ile Val Lys Thr Asp Glu Glu Lys
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Gln Ala Val Arg Arg Leu Lys Ile Asn Glu Phe Leu Ser Trp Phe Thr
145   150   155   160
Arg Leu Leu Pro Glu Gln Phe Lys Asn Phe Glu Phe Thr Asn Pro Asn
                165   170   175
Tyr Leu Thr Glu Ser Ile Ser Asp Ser Pro Val Val Asn Val Asp Lys
            180   185   190
Cys Lys Glu Ile Val Lys Ser Phe Lys Glu Ser Glu Ser Leu Glu Gly
            195   200   205
Leu Ser Gln Lys Tyr Glu Leu Ile Asp Glu Asp Val Leu Val Ala Ala
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Ile Cys Ile Gly Val Leu Asp Thr Asn Asn Glu Glu Asp Val Asp Phe
225   230   235   240
Asn Val Leu Cys Asp Asp Arg Ile Asp Asp Trp Ser Ile Glu Lys Cys
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Val Thr Phe Leu Asp Tyr Pro Asn Thr Gly Leu Asn Ser Lys Asn Gly
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Pro Leu Arg Phe Met Gln Phe Thr Val Thr Ser Pro Ala Ser Ala Ile
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Leu Met Leu Thr Leu Ile Arg Leu Arg Glu Glu Gly His Pro Cys Arg
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Leu Asp Phe Asp Ser Asn Pro Thr Asp Asp Leu Leu Leu Asn Phe Asp
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Gln Val Glu Phe Ser Asn Asn Ile Ile Asp Thr Ala Val Lys Tyr Trp
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Pro Ser Asp Asp Ala Glu Leu Thr Tyr Ala Ile Val Gln Asp Arg Val
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Asp Ala Met Thr Tyr Lys Val Lys Phe Ile Asp Thr Ser Gln Ile Arg
465                      470                      475                      480
Glu Cys Asn Ile Arg Asp Leu Ala Met Thr Thr Gln Gly Met Tyr Asp
                    485                      490                      495
Pro Ser Leu Asn Thr Phe Gly Asp Val Gly Leu Arg Val Ala Cys Arg
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Gln Val Ile Ser Ser Ser Gln Phe Gly Lys Lys Thr Ile Trp Leu Thr
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Gly Thr Ala Ala Gly Arg Arg Arg Ala His Arg Ser Asp Phe Leu Ile
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Phe Phe Asp Asn Gly Thr Asp Ala Tyr Val Ser Ala Pro Thr Met Pro
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            595                      600                      605
Phe His Trp Ile Arg Gln Ser His Arg Ser Ala Tyr Ile Arg Asp Phe
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Asp Arg Asn His Gln His Ile Asp Glu Lys Ile Tyr Arg Gly Ser His
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Arg Leu Glu Gly Ala Ala His Lys Lys His Met Ile Ser Thr Asn Asn
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Thr Asp Met Ile Arg Ser Met Pro Glu Arg Asn His Gln Gln Val Val
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Phe Asn Lys Ile Ile Val Pro Ile Pro Val Leu Thr Pro Leu Glu Asn
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Leu Lys Ala His Ala Gln Cys Gly Pro Asp Cys Leu Gln Lys Met Asp
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Ala Asp Pro Tyr Glu Ala Arg Phe His Arg Asn Ser Pro Ile His Thr
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Pro Leu Leu Cys Gly Trp Arg Arg Ile Met Tyr Thr Met Ser Thr Gly
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Lys Lys Arg Gly Ala Val Lys Lys Asn Ile Ile Tyr Phe Ser Pro Cys
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Gln Tyr Asn Asp Gln Val Asp Ile Ser Ser Val Ser Arg Asp Phe Cys
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Ile Lys Tyr Pro Met His Val Ser Leu Phe Asn Asp Asp Thr Tyr Gln
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Val Ala Phe Phe Thr Arg Lys Tyr Val Lys Ala Gly Asp Glu Leu Thr
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Trp Asp Tyr Gln Tyr Thr Gln Asp Gln Thr Ala Thr Thr Gln Leu Thr
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Pro Gly Ala Pro Glu Ala Ser Ala Pro Ala Gln Glu Ala Ser Glu Ala
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Ser Ala Pro Asp Gln Glu Ala Pro Glu Val Gln Asp Val Pro Asp Ser
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Lys Glu Leu Thr Asn Glu Ile Thr Gly Met Arg Val Gln Met Asn Lys
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Gln His His Gln His Arg Pro Ile Met Leu Ala Pro Arg His His Pro
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Pro Pro Pro Pro His Phe Thr Pro Asn Gln Arg Ala Ala Ala Pro Tyr
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His Pro Asn Met Val Gln Pro Asn Arg Leu Ala Ala Met Pro His Arg
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Arg Pro Ile Ile Gly Met Gln
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Asn Gly His Gln Ala Leu Val Pro Ser Pro Gln Ser Ser Ser Ala Phe
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Ser Arg Pro Pro Pro Thr Gln Leu Ala Thr Gln Arg Arg Ala Pro Pro
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Pro Leu Val Ser Thr Ala Asn Thr Ile Ser Ser Gly Asp Ser Thr Arg
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Leu Pro Lys Val Pro Arg Ile Tyr Glu Asn Leu Thr Ala Asn Pro Asp
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Leu Ser Val Thr Ile His Ser Ser Ala Gln Asp Phe Arg Glu Asn Tyr
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cca gaa gat cgt ata tca att gac tgg gga tgc tcg aaa ttg tgg cct    10438
Pro Glu Asp Arg Ile Ser Ile Asp Trp Gly Cys Ser Lys Leu Trp Pro
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Cys Lys Pro Lys Ser His His Lys Phe Arg Val Arg Phe His Gln Ala
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Gln Leu Leu Pro Lys Asn Asp Arg Ile Thr Ile Val Ala Val Ala Lys
695              700              705              710

gat aaa act agc gga att att cac att tcg cag gtgaaaaatt ggaaaatttg 10587
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Leu Val Ile Asp Met Asp Glu Asp Glu Asp Val Thr Thr Asp Gly Pro
65   70   75   80
Glu Ser Gln Glu Glu Leu Ala Ala Asp Ala Pro Ala Pro Gly Ala Pro
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Val Pro Gly Ser Thr Glu Ala Gln Asp Ala Gln Asp Val Pro Asp Ser
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Asp Ile Ile Ile Glu Glu Glu Ala Val Glu Glu Ala Glu Ala Val Glu
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<400> 36

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Phe	Cys	Pro	Ile	Glu	Leu	Asn	Ile	Asn	Gly	Ser	Pro	Gly	Ala	Glu	Ser
			20					25					30		
Asp	Leu	Ala	Thr	Phe	Cys	Thr	Ser	Lys	Thr	Asp	Ala	Val	Leu	Met	Thr
			35				40					45			
Ser	Asp	Asp	Ser	Val	Thr	Gly	Ser	Glu	Leu	Ser	Pro	Leu	Val	Lys	Ala
		50				55					60				
Cys	Met	Leu	Ser	Ser	Asn	Gly	Phe	Gln	Asn	Ile	Ser	Arg	Cys	Lys	Glu
65					70					75					80
Lys	Asp	Leu	Asp	Asp	Thr	Cys	Met	Leu	His	Lys	Lys	Ser	Glu	Ser	Pro
				85					90					95	
Phe	Arg	Glu	Thr	Glu	Pro	Leu	Val	Ser	Pro	His	Gln	Asp	Lys	Leu	Met
			100					105					110		
Ser	Met	Pro	Val	Met	Thr	Val	Asp	Tyr	Ser	Lys	Thr	Val	Val	Lys	Glu
		115					120					125			
Pro	Val	Asp	Thr	Arg	Val	Ser	Cys	Cys	Lys	Thr	Lys	Asp	Ser	Asp	Ile
	130					135					140				
Tyr	Cys	Thr	Leu	Asn	Asp	Ser	Asn	Pro	Ser	Leu	Cys	Asn	Ser	Glu	Ala
145					150					155					160
Glu	Asn	Ile	Glu	Pro	Ser	Val	Met	Lys	Ile	Ser	Ser	Asn	Ser	Phe	Met
				165					170					175	
Asn	Val	His	Leu	Glu	Ser	Lys	Pro	Val	Ile	Cys	Asp	Ser	Arg	Asn	Leu
			180					185					190		
Thr	Asp	His	Ser	Lys	Phe	Ala	Cys	Glu	Glu	Tyr	Lys	Gln	Ser	Ile	Gly
		195					200					205			
Ser	Thr	Ser	Ser	Ala	Ser	Val	Asn	His	Phe	Asp	Asp	Leu	Tyr	Gln	Pro
	210					215					220				
Ile	Gly	Ser	Ser	Gly	Ile	Ala	Ser	Ser	Leu	Gln	Ser	Leu	Pro	Pro	Gly
225					230					235					240
Ile	Lys	Val	Asp	Ser	Leu	Thr	Leu	Leu	Lys	Cys	Gly	Glu	Asn	Thr	Ser

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Pro Val Leu Asp Ala Val Leu Lys Ser Lys Lys Ser Ser Glu Phe Leu
            260                     265                     270
Lys His Ala Gly Lys Glu Thr Ile Val Glu Val Gly Ser Asp Leu Pro
        275                     280                     285
Asp Ser Gly Lys Gly Phe Ala Ser Arg Glu Asn Arg Arg Asn Asn Gly
        290                     295                     300
Leu Ser Gly Lys Cys Leu Gln Glu Ala Gln Glu Glu Gly Asn Ser Ile
305                     310                     315                     320
Leu Pro Glu Arg Arg Gly Arg Pro Glu Ile Ser Leu Asp Glu Arg Gly
                325                     330                     335
Glu Gly Gly His Val His Thr Ser Asp Asp Ser Glu Val Val Phe Ser
                340                     345                     350
Ser Cys Asp Leu Asn Leu Thr Met Glu Asp Ser Asp Gly Val Thr Tyr
                355                     360                     365
Ala Leu Lys Cys Asp Ser Ser Gly His Ala Pro Glu Ile Val Ser Thr
        370                     375                     380
Val His Glu Asp Tyr Ser Gly Ser Ser Glu Ser Ser Asn Asp Glu Ser
385                     390                     395                     400
Asp Ser Glu Asp Thr Asp Ser Asp Asp Ser Ser Ile Pro Arg Asn Arg
                405                     410                     415
Leu Gln Ser Val Val Val Val Pro Lys Asn Ser Thr Leu Pro Met Glu
                420                     425                     430
Glu Thr Ser Pro Cys Ser Ser Arg Ser Ser Gln Ser Tyr Arg His Tyr
                435                     440                     445
Ser Asp His Trp Glu Asp Glu Arg Leu Glu Ser Arg Arg His Leu Tyr
                450                     455                     460
Glu Glu Lys Phe Glu Ser Ile Ala Ser Lys Ala Cys Pro Gln Thr Asp
465                     470                     475                     480
Lys Phe Phe Leu His Lys Gly Thr Glu Lys Asn Pro Glu Ile Ser Phe
                485                     490                     495
Thr Gln Ser Ser Arg Lys Gln Ile Asp Asn Arg Leu Pro Glu Leu Ser
                500                     505                     510
His Pro Gln Ser Asp Gly Val Asp Ser Thr Ser His Thr Asp Val Lys
                515                     520                     525
Ser Asp Pro Leu Gly His Pro Asn Ser Glu Glu Thr Val Lys Ala Lys
                530                     535                     540
Ile Pro Ser Arg Gln Gln Glu Glu Leu Pro Ile Tyr Ser Ser Asp Phe
545                     550                     555                     560
Glu Asp Val Pro Asn Lys Ser Trp Gln Gln Thr Thr Phe Gln Asn Arg
                565                     570                     575
Pro Asp Ser Arg Leu Gly Lys Thr Glu Leu Ser Phe Ser Ser Ser Cys
                580                     585                     590
Glu Ile Pro His Val Asp Gly Leu His Ser Ser Glu Glu Leu Arg Asn
                595                     600                     605
Leu Gly Trp Asp Phe Ser Gln Glu Lys Pro Ser Thr Thr Tyr Gln Gln
                610                     615                     620
Pro Asp Ser Ser Tyr Gly Ala Cys Gly Gly His Lys Tyr Gln Gln Asn
625                     630                     635                     640
Ala Glu Gln Tyr Gly Gly Thr Arg Asp Tyr Trp Gln Gly Asn Gly Tyr
                645                     650                     655
Trp Asp Pro Arg Ser Gly Arg Pro Pro Gly Thr Gly Val Val Tyr Asp
                660                     665                     670
Arg Thr Gln Gly Gln Val Pro Asp Ser Leu Thr Asp Asp Arg Glu Glu
        675                     680                     685
Glu Glu Asn Trp Asp Gln Gln Asp Gly Ser His Phe Ser Asp Gln Ser
                690                     695                     700
Asp Lys Phe Leu Leu Ser Leu Gln Lys Asp Lys Gly Ser Val Gln Ala
705                     710                     715                     720
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Pro Glu Ile Ser Ser Asn Ser Ile Lys Asp Thr Leu Ala Val Asn Glu
             725                 730                 735
Lys Lys Asp Phe Ser Lys Asn Leu Glu Lys Asn Asp Ile Lys Asp Arg
             740                 745                 750
Gly Pro Leu Lys Lys Arg Arg Gln Glu Ile Glu Ser Asp Ser Glu Ser
             755                 760                 765
Asp Gly Glu Leu Gln Asp Arg Lys Lys Val Arg Val Glu Val Glu Gln
         770                 775                 780
Gly Glu Thr Ser Val Pro Pro Gly Ser Ala Leu Val Gly Pro Ser Cys
785                 790                 795                 800
Val Met Asp Asp Phe Arg Asp Pro Gln Arg Trp Lys Glu Cys Ala Lys
             805                 810                 815
Gln Gly Lys Met Pro Cys Tyr Phe Asp Leu Ile Glu Glu Asn Val Tyr
             820                 825                 830
Leu Thr Glu Arg Lys Lys Asn Lys Ser His Arg Asp Ile Lys Arg Met
             835                 840                 845
Gln Cys Glu Cys Thr Pro Leu Ser Lys Asp Glu Arg Ala Gln Gly Glu
    850                 855                 860
Ile Ala Cys Gly Glu Asp Cys Leu Asn Arg Leu Leu Met Ile Glu Cys
865                 870                 875                 880
Ser Ser Arg Cys Pro Asn Gly Asp Tyr Cys Ser Asn Arg Arg Phe Gln
             885                 890                 895
Arg Lys Gln His Ala Asp Val Glu Val Ile Leu Thr Glu Lys Lys Gly
             900                 905                 910
Trp Gly Leu Arg Ala Ala Lys Asp Leu Pro Ser Asn Thr Phe Val Leu
             915                 920                 925
Glu Tyr Cys Gly Glu Val Leu Asp His Lys Glu Phe Lys Ala Arg Val
    930                 935                 940
Lys Glu Tyr Ala Arg Asn Lys Asn Ile His Tyr Tyr Phe Met Ala Leu
945                 950                 955                 960
Lys Asn Asp Glu Ile Ile Asp Ala Thr Gln Lys Gly Asn Cys Ser Arg
             965                 970                 975
Phe Met Asn His Ser Cys Glu Pro Asn Cys Glu Thr Gln Lys Trp Thr
             980                 985                 990
Val Asn Gly Gln Leu Arg Val Gly Phe Phe Thr Thr Lys Leu Val Pro
             995                 1000                1005
Ser Gly Ser Glu Leu Thr Phe Asp Tyr Gln Phe Gln Arg Tyr Gly Lys
    1010                1015                1020
Glu Ala Gln Lys Cys Phe Cys Gly Ser Ala Asn Cys Arg Gly Tyr Leu
1025                1030                1035                1040
Gly Gly Glu Asn Arg Val Ser Ile Arg Ala Ala Gly Gly Lys Met Lys
             1045                1050                1055
Lys Glu Arg Ser Arg Lys Lys Asp Ser Val Asp Gly Glu Leu Glu Ala
             1060                1065                1070
Leu Met Glu Asn Gly Glu Gly Leu Ser Asp Lys Asn Gln Val Leu Ser
             1075                1080                1085
Leu Ser Arg Leu Met Val Arg Ile Glu Thr Leu Glu Gln Lys Leu Thr
    1090                1095                1100
Cys Leu Glu Leu Ile Gln Asn Thr His Ser Gln Ser Cys Leu Lys Ser
1105                1110                1115                1120
Phe Leu Glu Arg His Gly Leu Ser Leu Leu Trp Ile Trp Met Ala Glu
             1125                1130                1135
Leu Gly Asp Gly Arg Glu Ser Asn Gln Lys Leu Gln Glu Glu Ile Ile
         1140                1145                    1150
Lys Thr Leu Glu His Leu Pro Ile Pro Thr Lys Asn Met Leu Glu Glu
             1155                1160                1165
Ser Lys Val Leu Pro Ile Ile Gln Arg Trp Ser Gln Thr Lys Thr Ala
    1170                1175                1180
Val Pro Pro Leu Ser Glu Gly Asp Gly Tyr Ser Ser Glu Asn Thr Ser
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1185                 1190                 1195                 1200
Arg Ala His Thr Pro Leu Asn Thr Pro Asp Pro Ser Thr Lys Leu Ser
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Thr Glu Ala Asp Thr Asp Thr Pro Lys Lys Leu Met Phe Arg Arg Leu
          1220                 1225                 1230
Lys Ile Ile Ser Glu Asn Ser Met Asp Ser Ala Ile Ser Asp Ala Thr
          1235                 1240                 1245
Ser Glu Leu Glu Gly Lys Asp Gly Lys Glu Asp Leu Asp Gln Leu Glu
      1250                 1255                 1260
Asn Val Pro Val Glu Glu Glu Glu Leu Gln Ser Gln Gln Leu Leu
1265                 1270                 1275                 1280
Pro Gln Gln Leu Pro Glu Cys Lys Val Asp Ser Glu Thr Asn Ile Glu
              1285                 1290                 1295
Ala Ser Lys Leu Pro Thr Ser Glu Pro Glu Ala Asp Ala Glu Ile Glu
          1300                 1305                 1310
Leu Lys Glu Ser Asn Gly Thr Lys Leu Glu Glu Pro Ile Asn Glu Glu
          1315                 1320                 1325
Thr Pro Ser Gln Asp Glu Glu Glu Gly Val Ser Asp Val Glu Ser Glu
      1330                 1335                 1340
Arg Ser Gln Glu Gln Pro Asp Lys Thr Val Asp Ile Ser Asp Leu Ala
1345                 1350                 1355                 1360
Thr Lys Leu Leu Asp Ser Trp Lys Asp Leu Lys Glu Val Tyr Arg Ile
              1365                 1370                 1375
Pro Lys Lys Ser Gln Thr Glu Lys Glu Asn Thr Thr Thr Glu Arg Gly
          1380                 1385                 1390
Arg Asp Ala Val Gly Phe Arg Asp Gln Thr Pro Ala Pro Lys Thr Pro
      1395                 1400                 1405
Asn Arg Ser Arg Glu Arg Asp Pro Asp Lys Gln Thr Gln Asn Lys Glu
      1410                 1415                 1420
Lys Arg Lys Arg Arg Ser Ser Leu Ser Pro Pro Ser Ser Ala Tyr Glu
1425                 1430                 1435                 1440
Arg Gly Thr Lys Arg Pro Asp Asp Arg Tyr Asp Thr Pro Thr Ser Lys
              1445                 1450                 1455
Lys Lys Val Arg Ile Lys Asp Arg Asn Lys Leu Ser Thr Glu Glu Arg
          1460                 1465                 1470
Arg Lys Leu Phe Glu Gln Glu Val Ala Gln Arg Glu Ala Gln Lys Gln
          1475                 1480                 1485
Gln Gln Gln Met Gln Asn Leu Gly Met Thr Ser Pro Leu Pro Tyr Asp
      1490                 1495                 1500
Ser Leu Gly Tyr Asn Ala Pro His His Pro Phe Ala Gly Tyr Pro Pro
1505                 1510                 1515                 1520
Gly Tyr Pro Met Gln Ala Tyr Val Asp Pro Ser Asn Pro Asn Ala Gly
              1525                 1530                 1535
Lys Val Leu Leu Pro Thr Pro Ser Met Asp Pro Val Cys Ser Pro Ala
          1540                 1545                 1550
Pro Tyr Asp His Ala Gln Pro Leu Val Gly His Ser Thr Glu Pro Leu
      1555                 1560                 1565
Ser Ala Pro Pro Pro Val Pro Val Val Pro His Val Ala Ala Pro Val
      1570                 1575                 1580
Glu Val Ser Ser Ser Gln Tyr Val Ala Gln Ser Asp Gly Val Val His
1585                 1590                 1595                 1600
Gln Asp Ser Ser Val Ala Val Leu Pro Val Pro Ala Pro Gly Pro Val
              1605                 1610                 1615
Gln Gly Gln Asn Tyr Ser Val Trp Asp Ser Asn Gln Gln Ser Val Ser
          1620                 1625                 1630
Val Gln Gln Gln Tyr Ser Pro Ala Gln Ser Gln Ala Thr Ile Tyr Tyr
      1635                 1640                 1645
Gln Gly Gln Thr Cys Pro Thr Val Tyr Gly Val Thr Ser Pro Tyr Ser
1650                 1655                 1660
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Tyr Ile Gln Gly Gln Gln Ile Phe Thr Ala His Pro Gln Gly Val Val
            1685               1690                1695
Val Gln Pro Ala Ala Ala Val Thr Thr Ile Val Ala Pro Gly Gln Pro
        1700               1705               1710
Gln Pro Leu Gln Pro Ser Glu Met Val Val Thr Asn Asn Leu Leu Asp
        1715               1720               1725
Leu Pro Pro Pro Ser Pro Pro Lys Pro Lys Thr Ile Val Leu Pro Pro
        1730               1735               1740
Asn Trp Lys Thr Ala Arg Asp Pro Glu Gly Lys Ile Tyr Tyr Tyr His
1745             1750               1755                1760
Val Ile Thr Arg Gln Thr Gln Trp Asp Pro Pro Thr Trp Glu Ser Pro
            1765               1770               1775
Gly Asp Asp Ala Ser Leu Glu His Glu Ala Glu Met Asp Leu Gly Thr
            1780               1785               1790
Pro Thr Tyr Asp Glu Asn Pro Met Lys Ala Ser Lys Lys Pro Lys Thr
            1795               1800               1805
Ala Glu Ala Asp Thr Ser Ser Glu Leu Ala Lys Lys Ser Lys Glu Val
        1810               1815               1820
Phe Arg Lys Glu Met Ser Gln Phe Ile Val Gln Cys Leu Asn Pro Tyr
1825            1830               1835                1840
Arg Lys Pro Asp Cys Lys Val Gly Arg Ile Thr Thr Thr Glu Asp Phe
            1845               1850               1855
Lys His Leu Ala Arg Lys Leu Thr His Gly Val Met Asn Lys Glu Leu
            1860               1865               1870
Lys Tyr Cys Lys Asn Pro Glu Asp Leu Glu Cys Asn Glu Asn Val Lys
            1875               1880               1885
His Lys Thr Lys Glu Tyr Ile Lys Lys Tyr Met Gln Lys Phe Gly Ala
        1890               1895               1900
Val Tyr Lys Pro Lys Glu Asp Thr Glu Leu Glu
1905             1910               1915
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